SECTION VIII

SCOPE OF WORK

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

DESIGN
SCOPE OF WORK

089 YV 324 H6701 01D

PRESCOTT – CHINO VALLEY HWY (SR 89)

CENTER STREET TO SOUTH CHINO VALLEY LIMITS

November 2006

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SECTION 100 - GENERAL INFORMATION

NOTE: This scope of work is presented in two parts. The Project Scope of Work is contained in this section. It includes information specific to this project.

The section Dictionary of Standardized Work Tasks is presented as a section within the scope of work. It includes information that is common to Consultant design contracts. The description of work tasks is presented in Dictionary of Standardized Work Tasks. Not all the work tasks described are necessary on every project. In the event of conflict between the Scope of Work and the Dictionary of Standardized Work Tasks the Scope of Work shall take precedence.

101 General

A. Common Goal

In a Construction Manager at Risk (CMAR) project, the Department, Consultant, and CMAR have the common goals of producing a quality project within the budget, maximizing the value to the Department of the work, meeting, achieving timely completion without undue inconvenience to the public, and producing the work at reasonable cost to the Department and with a reasonable fee to the Consultant and the CMAR.

In promoting these goals, the Consultant shall cooperate and collaborate with the CMAR in producing design documents, cost estimates, and other items required by the Consultant's and CMAR's contracts; shall involve the Department to the appropriate extent in considering alternatives and making decisions; shall actively consider the potential for alternatives, improved methods, and other ways to maximize the quality of the project. It is expected that the Consultant will maintain constant communication with the CMAR and the Department during the design phase so that this collaboration will be carried out efficiently and at reasonable cost. Some of the greatest benefits of the CMAR approach are gained by the CMAR's participation in the design before the Stage II submittal.

The CMAR's reviews will be from a contractor's perspective. While these reviews will serve to reduce the number of Requests for Information (RFIs) and changes during the construction phase, responsibility for the Drawings and Specifications shall remain with the Consultant and not the CMAR.

B. Two-Phase Project

The overall CMAR project will be performed in two phases the design phase and the construction phase. During the design phase, the Consultant shall carry out those duties as set forth under this contract under the Design Section and the CMAR will perform under its pre-construction services contract. The Consultant is to familiarize itself with the terms of the CMAR's preconstruction contract so as to maximize the quality of the collective effort to obtain a quality project.

After the Department issues a notice to proceed for the construction work, the project will enter the construction phase, and the Consultant will perform post design services as set forth in this contract.

The design phase and the construction phase may overlap in time. It is anticipated that the CMAR will submit a Guaranteed Maximum Price (GMP) before the design is 100 percent complete, and that some aspects of the design will continue even after the CMAR has begun physical construction activities. The

Consultant shall continue with its duties under the design portion of this contract to complete the entire design to the 100 percent level.

The Consultant shall maintain separate records for the design and post-design portions of this contract, so that the Department may accurately track costs for portions of the contract and may be informed of the status of each activity.

102 Early Involvement of the CMAR

The Consultant acknowledges that its contract will be proceeding before the Department has hired the CMAR for preconstruction services. Some of the greatest benefits of the CMAR approach will be gained during the time between the beginning of the CMAR's preconstruction services work and the completion of the cost estimates associated with the Stage II design. Therefore, it is crucial to the success of the project that the Consultant be prepared to maximize the benefit of the CMAR's expertise during this portion of the work.

In order that the CMAR Package early activities may be carried out in the most efficient manner, the Consultant shall prepare a package to deliver to the CMAR when the CMAR receives its notice to proceed. (See section 1062 of the scope of work) To the extent possible, the documents in this package will include at least a preliminary consideration of those matters listed under the requirements of the Stage II submittal.

The Consultant shall also attend a partnering meeting with the CMAR in accordance with the Section 402.

Within 7 days of the partnering, the Consultant shall, in consultation with the CMAR, submit a plan and schedule for constructability reviews, which shall include a schedule for any report from the CMAR with regard to problems with constructability.

During this early phase of the work, it is anticipated that there would be a substantial amount of communication between the Consultant and the CMAR, because the Stage II submittal becomes the framework for the project. The costs associated with design changes after the Stage II completed submittals will be much greater than before. The Consultant shall endeavor to consider and make these changes before the Stage II submittal.

The Consultant shall consider the results of the value analysis and constructability reviews, and the input of the CMAR, in preparing the Stage II submittal.

110 Location

The project 089 YV 324 H6701 01D, -Center Street to South Chino Valley Limits, section of the Prescott – Chino Valley Highway, is located on SR 89 in Yavapai County between Jct 89A to Chino Valley. The project limits are from approximately MP 324.2 – MP 327.0.

Location and vicinity map is attached in Appendix A.

120 Description

SR 89 is currently classified as a rural minor arterial highway within this reach. It serves as a major corridor between Prescott and Chino Valley. The Town of Chino Valley is experiencing very rapid growth along SR 89, with numerous development proposals on the table and more expected as their new sanitary sewer plant comes on line in the coming year. Numerous commercial and private driveways, some with right turn bays, access this section of SR 89.

The work on this project includes the following:

A. The Design firm shall design and prepare construction plans, technical project specific specifications, quantity computations and related construction documents. All of the above shall be in English units.

B. The project involves the design of proposed improvements, which will fully reconstruct existing SR 89, from MP 324.2 to MP 327.0, to a 4-lane raised median section. The design will accommodate the addition of a future travel lane and right turn lanes with concrete curb and gutter and sidewalk. The typical section is a modified ADOT IS1 section that includes a 20-foot raised median, 14-foot inside lanes north of Road 4 South, 16-foot inside lanes south of Road 4 South, 12-foot outside lanes and 8-foot shoulders. The 16-foot inside lanes south of Road 4 South will accommodate a transition to a likely higher speed section south of the Chino Valley limits. At the four major crossroads the median will be 28-foot to accommodate dual left turn lanes. Left turn lanes will be provided at select locations between crossroads. Curb, gutter and sidewalk ramps will be constructed at the major crossroad radius returns for the ultimate, six-lane configuration. All four-crossroad intersections will eventually be signalized and initial construction will signalize Road 2 South. Conduit will be placed for future signals at Roads 1, 3, & 4 South. The intersection construction will include crossroad improvements and tapers. Two existing drainage structures, including a 24-inch and a 30-inch CMP, will be extended, enlarged, and/or replaced. The other seven cross drainage culverts will be extended to accommodate the roadway widening. Sleeves will be provided for future median landscaping, and the median will include decomposed granite. Seeding will be provided for all disturbed areas. Relocation is required for overhead electric, gas, and communications utilities. New right of way is required for crossroad improvements. An existing Loop Detector Traffic Counter at MP 326 will need to be replaced with new counters at MP 324.85 & MP 326.95. For additional scope description refer to the Final Project Assessment dated November 2005, prepared by Arcadis.

C. The design shall include and incorporate all mitigation measures identified in the final environmental document. ADOT will prepare the needed environmental document.

D. The team for the design effort shall include at a minimum Yavapai County, Town of Chino Valley, ADOT Prescott Construction District, ADOT technical disciplines and other agencies and interested stakeholders.

E. The Design firm shall provide post design services as necessary for successful construction of the project.

F. This project will follow the Construction Manager at Risk (CMAR) project delivery process. The CMAR project delivery system allows the Department, Consultant and CMAR to work as a

unified team. A benefit of hiring a CMAR early in the planning stages of a project is the ability to utilize construction expertise in all aspects of the design and planning. The following arethe tasks performed by the Consultant and CMAR. **The lists are illustrative and are not intended to be all-inclusive.**

1. CONSULTANT

- Prepare plans and specifications
- Utilize CMAR expertise during design development.
- Develop a Critical Path Method (CPM) detailed schedule with project milestone dates for design development.
- Attend regularly scheduled progress team meetings and provide an agenda and meeting minutes to the project team.
- Update the design schedule as needed.
- Review existing design survey for completeness and provide any supplemental survey as necessary.
- Develop a design footprint and identify any Right of Way needs.
- Utilize any Department furnished design reports and update/revise if needed
- Identify utility conflicts and relocations
- Attend and participate in public meetings.
- Provide any project specific specifications.
- Value Analysis
- Arrange Constructability Reviews.
- Provide Design Development Construction Documents
- Provide construction cost estimates for comparison with the Department construction estimates and the CMAR cost model.
- Provide Post Design Services.

:

2. CONSTRUCTION MANAGER AT RISK

- Coordinate with the Consultant
- Prepare a Construction Management Plan (CMP)
- Prepare a CPM project schedule
- Attend regularly scheduled progress team meetings
- Review Design developed Construction Documents and make suggestions
- Value Analysis
- Constructability reviews
- Construction phasing, sequencing and site logistics
- Long-Lead Time Item Procurement
- Biddability reviews
- Permitting, subcontractor preparation and packaging
- Prepare a Cost Model
- Provide a Guaranteed Maximum Price (GMP)

140 Construction Cost

The SR 89 Center Street to South Chino Limits (MP 324.3-MP 327.0) project has been approved by the Transportation Board and is currently listed in the Five Year Transportation Program 2007-2011.

160 Length of Services

The length of service is estimated to be 400 calendar days, including Post Design Services. This begins with the notice to proceed through the completion of the construction work.

171 Design Schedule

The Consultant shall develop a schedule for the design necessary for delivering the project in a timely manner. The Consultant shall provide a CPM schedule for the design phase compatible to ADOT's Primavera scheduling system that will accommodate the ADOT milestone dates developed for this CMAR process. It shall include the milestones/flags requested by ADOT. An initial schedule shall be submitted within 2 weeks after the notice to proceed. The schedule submitted shall be customized to reflect the exact needs of the project. Work elements for which ADOT has responsibility shall be included in the schedule. As part of the project team the CMAR will provide the Consultant input, as needed, when the design schedule is updated. The CMAR will develop an overall project schedule. Specific key milestone from the design schedule will be included in the CMAR project schedule that includes the design phase and the construction phase. It is the responsibility of the Consultant to submit changes to the design schedule for update to the overall project schedule.

172 Design Schedule Updates

The Consultant shall status activities in the design schedule in accordance with a design schedule furnished by ADOT. Changes to the design schedule logic will be submitted to the ADOT project manager for approval. If any milestones show negative float, the Consultant shall include a narrative of corrective solutions to put the design schedule back on time for delivery.

173 Progress Meetings

The Consultant shall arrange, coordinate and attend a regularly scheduled progress meeting every 2 weeks. The Consultant shall record "minutes" of the progress meeting. The "minutes" shall be distributed to the team within 5 calendar days of the meeting. The attendance shall include the necessary disciplines that make up the project team; Environmental, Utilities, Right of Way, Roadway Design Review, Contracts & Specifications, Prescott District, Program and Project Management Section, Roadside Development, Materials, Communication & Community Partnership, the CMAR and other stakeholders as may be required.

190 Environmental Documents

ADOT Environmental Planning Group (EPG) will be preparing the needed environmental documentation.

The Consultant shall work with the CMAR to provide the needed documentation for completion of the environmental documents.

SECTION 200 - DESIGN REFERENCES

Design references developed and published by ADOT and other agencies and adopted by ADOT for use in the design of this project are listed in the ADOT Project Development Process Manual, ADOT Landscape Design Guidelines, ADOT Erosion and Pollution Control Manual for Highway Design and Construction, the ADOT Roadway Design Guidelines and the Standard Specifications for Road and Bridge Construction (2000 edition) and Stored Specifications. The Consultant is responsible for designing in accordance with the applicable documents and current revisions and supplements thereto. The following documents were, or will be, produced for this project and will be available to the selected design Consultant.

210 Miscellaneous Reports and Studies for this project

A. Project Assessment (ADOT/Arcadis)- Final

B. Environmental Document (ADOT EPG)- pending

C. Noise Study Report (ADOT EPG)- pending

D. Clean Water Report (ADOT EPG - pending

E. Biological Assessment (ADOT EPG) – pending

F. Regional Air Quality Analysis (ADOT EPG)- pending

G. Cultural Resource Report (ADOT EPG)- pending

H. Visual Impact Analysis (ADOT EPG)- pending

I. Geotechnical Investigation Initial Report (Ninyo & Moore) – Final pending

J. AASHTO Design Criteria Report (Arcadis)- Final

L. Hazardous Materials Report (ADOT EPG) – pending

M. Traffic Study (Bolduc Smiley - Dated November 2004)- Available

N. Drainage Report Prepared By Arcadis G&M.

220 AASHTO Publications

ADOT references and publications shall control the work and, in the event of conflict, take precedence over AASHTO and FHWA references.

SECTION 300 - DESIGN CRITERIA

The Final Project Assessment and the basic design criteria listed below will guide design of this project. These design criteria will serve as the basis for referencing the project design standards and guidelines referenced in Section 200.

301 Supplemental Design Criteria

The design criteria listed in this section and Project Design Memoranda provided by ADOT during the course of the project may supplement the Project Design Guidelines.

310 General

- Design Year - 2025
- Design Speed - 55 mph - minimum
- Pavement Design Life - 20 years

320 Geometry

In accordance with Roadway Design Guidelines, the following are specific criteria to be used.

- Number of Traffic Lanes: 4
- Slope Guidelines: Std. C-02 Series
- Maximum Gradient: 6%
- Maximum super elevation: 0.08 ft./ft.

Widths

- Traffic Lane - 12 ft
- Shoulder - 8 ft outside shoulder; 2 ft - 4 ft inside shoulders
- Raised Concrete Curbed Median - variable, refer to Final PA
- Intersecting/Side Roadway Widths – refer to Final PA
- Driveway and Turnout Layout - Std C-06 Series

Drainage

Design Frequency:

- Pavement - 10 years
- Cross Culverts - 25 years
- Medians - 25 years
- Storm Drain - 10 years
- Channels - 25 years
- Curb and Gutter Type - Std. C-05 Series
- Maximum Velocity - Evaluate erodibility of native soil
- Minimum Velocity - Evaluate deposition of soil
- Allowable Headwater - Not closer than three inches below the edge of pavement.
- FEMA Considerations - Evaluate per ADOT Roadway Design Guidelines, Section 602.4
- Erosion Control - To be determined per HEC-14 and HEC-15
- Pavement Drainage - Evaluate per HEC-22

Traffic

- Signing Permanent - Freeway Rural - Conventional Highway
- Signing Temporary -Traffic Control during Construction

Other Features

- Guardrail/Barrier Type - Std C-10 Series
- Fencing Type - Std C-12 Series
- Cattle Guards - Std C-11 Series
- Retaining Walls - Std B-18 Series or alternate proprietary retaining wall systems (if appropriate)
- Sound Barrier Walls - Std B-30 Series or alternate proprietary retaining wall systems (if appropriate)

SECTION 400 - DESIGN WORK PERFORMED BY CONSULTANT

The Consultant shall be responsible for the design work and preparation of construction documents outlined in this section in accordance with the standard design tasks listed in the Dictionary of Standardized Work Tasks. The Consultant shall perform all work in accordance with the current standards, policies and procedures, as of the time of the work, unless otherwise directed.

401 Design Features

The Consultant shall be responsible for the design development and construction document preparation for a segment of new four lane divided roadway for SR 89 as specified in Sections 110 and 120. The design work will be carried to completion of Final Plans, Specifications and Estimate.

The design will be developed on the basis of the Final Project Assessment, dated November 2005, and the associated technical reports referenced in Section 200.

The Consultant shall coordinate closely with the ADOT Project Manager, the selected CMAR and other members of the project team.

402 Early Coordination Meetings

A. Design Kick-off Meeting

It is the intention of the Department to conduct a Design Kick-off Meeting with the Consultant and Subconsultants and the Project Team shortly after Notice To Proceed (NTP) has been given to the Consultant.

B. Team Partnering with CMAR

The Department shall arrange a partnering meeting involving the Consultant and subConsultants, the CMAR and subcontractors, and the Department. The meeting shall take place within 5 working days after the CMAR's notice to proceed. This meeting will concern: (a) procedures designed to maximum cooperation and collaboration between the Consultant, the CMAR, and the Department; (b) communication between Consultant and CMAR regarding constructability, value analysis, and other collaborative efforts; (c) schedules for submittals such as stage plans, specifications, cost estimates, and analysis of alternatives; (d) a partnering escalation ladder; (e) public involvement; (f) and such other matters as may be appropriate. A point of emphasis will be the joint efforts of the Consultant and CMAR to arrive at Stage II submittal and cost estimates.

405 AASHTO Design Criteria Report

AASHTO design criteria were reviewed in the Final Project Assessment.

410 Surveys and Mapping

ADOTwill provide the survey for design. The Consultant will provide any additional supplemental survey if necessary.

416 Geotechnical Investigation

ADOT will perform the Geotechnical Investigation

417 Earthwork

The Consultant shall provide an earthwork estimate for the project consistent with the Final Project Assessment, Visual Analysis and other Environmental and Mitigation considerations unless otherwise directed by the Department. Environmental considerations are of primary concern, and therefore any balancing to be provided by changes in geometrics must be approved by ADOT. Considerable environmental concerns as well as limited right-of-way may preclude the use of any alternative to achieve an earthwork balance.

419 Pavement Design

ADOT will provide the Pavement Design Summary and Materials Design Report.

420 Environmental Studies

The ADOT Environmental Planning Group will prepare the needed environmental documentation. The Consultant shall be responsible for incorporating any mitigation measures, which are mentioned in the Final Document into the design of the project.

The design activities required to reach the Stage II submittal may proceed concurrently with the environmental studies. Activities (i.e., geotechnical investigations, survey, etc.) that require soil or vegetation disturbance may not begin until the appropriate environmental clearance (i.e., cultural resources, hazardous materials, or biological evaluations) is issued. ADOT Environmental Planning Group, in cooperation with the affected Federal, State or Local Agency, will obtain the required clearance.

422 Noise Analysis Technical Report

ADOT will produce the Noise Analysis Technical Report. The Consultant shall coordinate with EPG to review any changes in vertical or horizontal alignment to assure that predicted noise levels are not increased, that noise levels do not approach or exceed Noise Abatement Criteria (NAC), and that appropriate noise abatement criteria are implemented.

424 Archeological Testing and Recovery

ADOT) will perform the archaeological survey. Where archaeological testing and recovery is determined to be necessary, the Consultant shall provide required technical information on the project to ADOT Environmental Planning Group.

425 Public Information Meetings and Public Hearings

At least one public information meeting will be held for this project. The purpose of any meeting shall be to inform the public of the scope and status of the project. The meeting will, also, allow the coordination with the businesses and developments along SR 89 for the consolidation of driveways.

ADOT Communication and Community Partnerships (CCP) will manage the public involvement efforts. CCP will assign one of its On-Call Consortiums to develop and implement the public involvement and public information efforts for this design. The consortium will participate as a member of the project team, collaborating with the team on the appropriate communication strategies. Responsibilities will include identifying the stakeholders, working with any advisory groups, formulating coordination techniques for interacting with a variety of agencies, jurisdictions, elected officials, businesses and developments as well as determining approaches to collect input from the public, providing information to the public regarding the scope and status of the project and conducting a public information meeting for the project.

The CMAR will participate in the public information meetings;

The Consultant shall be responsible for the following tasks necessary to assist the assigned Public Relations firm in preparing and conducting each public meeting:

1. Participate in team meetings prior to the public information meeting and advise of issues during design.

2. Prepare meeting information in the form of graphics, cost estimates, and other material appropriate to describe the project to the public.

3. Attend the meeting at an advisory level to answer questions, and if requested by ADOT, give a presentation.

429 Hazardous Materials Survey

During the development of the construction documents, ADOT's Environmental Planning Group will review the plans for undetermined impacts and potential to encounter hazardous materials. If required, the Consultant shall include any mitigation measures in the construction documents.

430 Utilities and Railroad

The Consultant shall coordinate with ADOT Utility & Railroad Section to obtain field verification of existing utilities. The Consultant shall notify and coordinate with existing utility companies, obtain as-built information, indicate existing utilities and planned relocations on construction plans determine and resolve any utility conflicts in conjunction with the CMAR, and prepare utility special provisions and clearance.

It is anticipated that widening SR 89 will impact existing joint use overhead facilities on the west side of the corridor requiring relocation. It is likely that underground utilities crossing the corridor will have to be extended in sleeves to accommodate the widened roadway.

Coordination is required with Chino Valley Irrigation District to confirm whether the irrigation culvert at MP 326.7 must remain operational during and after construction. Prior rights status will also be determined during the design phase by ADOT. The ADOT Prescott District prefers relocation of utilities to a utility corridor.
The Consultant shall specify the locations of all required utility relocations in the Stage II plans.

440 Plans and Documents

The Consultant shall prepare plans and documents for construction.

450 Drainage Design

The Consultant shall obtain and review the Initial Drainage Report prepared by Arcadis G&M and provide a Final Drainage Report.

Additional drainage information is discussed in the Project Scope section of the PA report.

The Consultant shall make use of existing drainage information, to the extent possible, to eliminate rework.

There are no major structures on this project. It is anticipated that all drainage structures can be called out from standard drawings.

453 Section 404 Permit

ADOT will prepare any Corp of Engineers Section 404 permit applications. The Consultant shall provide to the Department the necessary data.

455 Landscape Architectural Design and Erosion Control

The Consultant shall prepare temporary and permanent erosion/sediment control and water quality protection plans, specifications and estimates including Storm Water Pollution Prevention Plans (SWPPP).

The Consultant, with input from the CMAR, shall complete the necessary plans; specifications and estimates required for implementing the necessary environmental mitigation as required by the Final Environmental Document.

The Consultant shall be responsible for designing sleeves for future median landscaping.

460 Traffic Engineering Design

A. The Consultant shall, in conjunction with the CMAR, prepare a Phasing and Construction Sequence Report. The Phasing and Construction Sequence report shall address items such as construction stage limits, earthwork volumes, mass haul diagrams, construction sequencing, and traffic control.

B. The Consultant shall, in conjunction with the CMAR, determine the need for traffic control plans and prepare traffic control plans for each phase of construction. Summary quantities shall be included on the traffic control plans.

461 Traffic Engineering Study

The Consultant shall review and update the Traffic Study that was prepared by Bolduc Smiley & Associates dated November 2004. The study performed an operational analysis for both current and future traffic conditions.

The Consultant shall provide any necessary traffic data that is not provided by ADOT (Dictionary of Standard Work Tasks, Section 740) including:

A. Twenty-four hour traffic counts
B. Turning movements at intersections

463 Roadway Lighting and Signalization

The Consultant shall provide details and construction documents for lighting and new signals at the intersection with Road 2 South.

Conduit will be placed for future signals at Road 1 South, Road 3 South and Road 4 South.

464 Signing Plans

The Consultant shall prepare plans for signing of the roads within the project limits using current standards.

465 Pavement Marking Plans

The Consultant shall prepare pavement-marking plans for the roadways within the project limits.

467 Composite Traffic Control Device Plan

The Consultant shall provide a composite plan indicating signing and pavement markings to facilitate review of the controls and devices that will be visible to motorists.

471 Right-of-Way Requirements Determination

The Consultant shall determine the requirements of new Right-of-Way (R/W) and easements, including, but not limited to, new roadway R/W, slope easements, drainage easements, temporary construction easements, waste site R/W, access control R/W, borrow pit R/W, haul road R/W, and excess R/W.

The Consultant shall submit to ADOT, in writing, any new R/W requirements on or before the Stage II submittal. This delineation will constitute the Final R/W requirements. No revisions or additions to the R/W requirements will be allowed after the Stage II design submittal without the approval of the Project Manager. This information will be used by ADOT to complete the preparation of R/W plans and documents.

472 Right-of-Way Acquisition

ADOT will process acquisition of right-of-way and will initiate a title search for all affected parcels and will initiate a title search for all affected parcels.

474 Court Testimony

The Department may require the Consultant to testify in court.

If the Consultant must testify in Court, a contract modification will be written.

480 Cost Estimates

The Consultant shall prepare detailed construction estimates for each design stage submittal, in the format provided by the Department. The estimate shall also include backup calculations for each item, which must include, labor, materials, equipment, and other costs.

After the submission of the CMAR cost model at each stage submitted, the Consultant will arrange a meeting to discuss the cost estimates that are prepared by the Consultant, CMAR, and the Department, with a goal to reconcile these cost estimates. There will then be an approved Stage submittal cost estimate agreed upon by the Consultant, CMAR, and the Department. If the estimates differ greatly or are over the project budget, adjustments in the design may need to occur.

485 Specifications

The Consultant shall prepare the Special Provisions for the project. The Consultant shall incorporate the Department's stored specifications, (database of commonly used Special Provisions), modifications to the Standard Specifications and any project specific item specifications.

The Consultant shall coordinate with the Department's Contracts and Specifications section to ascertain that they are incorporating the latest version of the stored specifications. The Consultant shall update and develop the Special Provisions throughout the project development process.

The Consultant is not responsible for Division I, General Provisions of the Specifications.

SECTION 600 - POST-DESIGN SERVICES

In addition to the Post Design Services, the Consultant is required to attend the Pre-Construction Partnering Workshop and/or utility coordination meetings and be available for any construction meetings.

SECTION 1000 - CONTRACT ADMINISTRATION

The work in this contract shall be administered in accordance with section 1000 of the Dictionary of Standardized Work Tasks. Additional information is provided below.

1027 Site Visit

Site visits will be held within ten working days of the receipt of written Notice to Proceed.

1050 Value Analysis

The CMAR, Design Consultant, and the Department shall participate in a formal Value Analysis (VA) of the project. The VA is anticipated to occur prior to the Stage II submittal

1060 Reviews and Submittals

All plans and roadway cross sections shall be true half size black and white sheets.

1062 Design CMAR Package (Pre-Stage II Submittal)

A. The Consultant will prepare a Design CMAR package and deliver it to the CMAR immediately after the CMAR's notice to proceed. This package shall include the current design information available and shall include, at a minimum, the following:

1. Initial Typical roadway section
2. Initial roadway plan and profile sheets
3. Tentative plans layout
4. Location of existing utilities
5. Initial Geotechnical information
6. Design survey information
7. Design Schedule

1063 Stage II Design Submittal

A. The following material shall be developed and submitted for review:

1. Typical roadway section.
2. Final roadway geometry and preliminary roadway.
3. Location of existing utilities and identification of initial utility conflicts
4. Utility report
5. Preliminary R/W and preliminary easement requirements
6. Preliminary roadway drainage plans and details and Updated Initial Roadway Drainage Report

7. If required, draft applications for environmental permits including preliminary input for Section 404 permit

8. Any significant change in engineering data supporting previous environmental decisions or applications

9. Preliminary summary of required environmental mitigation measures

10. Preliminary development of intersection plans including basic geometry and channelization

11. Preliminary layouts for proposed retaining and sound barrier walls

12. Preliminary construction sequencing plans

13. Final survey information

14. Initial quantities and cost estimate

15. Preliminary roadway cross sections at one hundred ft. intervals, as a minimum, with additional sections at breaks in the terrain

16. Preliminary summary of earthwork quantities

The project team will determine if additional items, if deemed necessary, will be added or items removed from this Stage submittal.

1064 Stage III Design Submittal

A. The following material shall be developed and submitted for review:

1. Final typical roadway and detour sections

2. Pre-final roadway and detour plan and profile sheets

3. Identification of final utility conflicts and preliminary plans of utility installations and/or re-locations to be included in project construction

4. Pothole data made available to utility companies

5. Utility report

6. Final R/W and easement requirements

7. Pre-final roadway drainage plans and details and Final Roadway Drainage Report

8. Completed applications for environmental permits including final input for Section 404 permit

9. Any significant change in engineering data supporting previous environmental decisions or applications

10. Final summary of required environmental mitigation measures

11. Pre-final intersection plan sheets

12. Final construction sequencing plans

13. Pre-final layouts for retaining and sound barrier walls

14. Preliminary design sheet with index and general notes, summary sheets and special details

15. Preliminary summary sheets

16. Preliminary special details

17. Preliminary traffic control plans

18. Preliminary pavement marking and signing plans

19. Preliminary traffic signal plans

20. Preliminary lighting plans

21. Preliminary erosion control plans, summaries and details

22. Preliminary special provisions including ADOT Stored Specifications

23. Preliminary quantities, cost estimate

24. Preliminary roadway cross sections at one hundred ft. intervals, as a minimum, with additional sections at breaks in the terrain.

25. Preliminary summary of earthwork quantities

26. Preliminary Utility Special Provisions

An office review and field review will be held following submittal of the Stage III submittal to review the proposed roadway alignment. See Section 410 of this Dictionary of Standardized Work Tasks for field review staking requirements.

The project team will determine if additional items, if deemed necessary, will be added or items removed from this Stage submittal.

B. The Design Phase and the Construction Phase are not mutually exclusive in timing. The Construction Phase may begin before all activities of the Design Phase are complete.

Regardless of when the Construction Phase begins, the CMAR will remain obligated to complete all actions in Preconstruction Services Contract documents.

1065 Stage IV Design Submittal

A. The following material shall be completed, checked and submitted for review:

1. Design sheet(s) with index and general notes
2. Summary sheets
3. Special details
4. Typical roadway and detour sections
5. Roadway and detour plan and profile sheets
6. Drainage plans and details
7. Intersection plans and details
8. Construction sequencing plans
9. Traffic control plans
10. Traffic signal plans
11. Signing and pavement marking plans
12. Lighting plans
13. Retaining wall and sound barrier wall design plans
14. Utility installation/relocation plans and details to be included in project construction
15. Utility report
16. Utility Special Provisions
17. Utility relocation schedule and costs
18. Erosion control plans
19. Roadway cross sections (see Section 440, Roadway Design)
20. Final summary of earthwork quantities

21. Special provisions, quantities, cost estimate

22. Environmental permits

23. Summary of environmental mitigation measures and disposition

24. Final design calculations

NOTE: The ADOT technical reviewer may require checked computations and checked data on the plans for all of these items prior to submittal.

B. ADOT's review of this submittal will include technical content, incorporation of previous comments, and completion of design and details, as well as:

1. Conformance with ADOT requirements

2. Completeness of the contract documents

3. Compatibility of plans, specifications, and special provisions

4. Coordination between disciplines, phases, and outside parties

5. Clarity of the contract documents

6. Consistency of presentation

If additional submittals at this level are required due to noncompliance with this Scope of Work or ADOT's review comments, the work shall not entitle the Consultant to any additional design fees.

The Consultant shall prepare and submit to U & RR a Utility Clearance Letter in the style and manner as outlined in the *Utility Coordination Guide for Design Consultants*. The clearance letter shall be sent before the Final Submittal is made.

The project team will determine if additional items, if deemed necessary, will be added or items removed from these Stage submittal.

1066 Final Submittal

. The following material shall be submitted for completion of the project:

1. A complete reproducible set of sealed and signed contract document originals necessary to construct the road and/or bridge improvements identified in this contract.

2. A complete sealed and signed reproducible set and one copy of special provisions to cover design items not identified in the ADOT Standard Specifications for Road and Bridge Construction, current edition.

3. An electronic version of all plan sheets as specified in Section 1040. The Consultant shall also provide a separate CD containing all plan sheets in PDF format. Filenames shall conform to the format provided by ADOT.

4. Final and complete quantity summaries and cost estimates

5. Final survey computations and original field books

6. Approved environmental permits if required

7. A reproducible set of earthwork cross sections by station showing the plotted roadway template superimposed on the plotted natural terrain (see Section 440, Roadway Design)

8. A reproducible set of final earthwork quantities, calculations and overall summaries

9. Return any documents and other materials provided for use on this project, exclusive of any materials that will be used for Post Design Services.

NOTES:

1. All seals must be of reproducible quality and all signatures in black ink.

2. All final plan sheets shall be trimmed to 22" by 34".

3. All final plan sheets shall be printed on 20 pound vellum not less than 3 mil nor more than 5 mil.

4. Plan sheets shall be black printing only.

5. Do not use paste-ups, tape or sticky back.

6. Do not use pencil on final drawings.

Contract 07-04

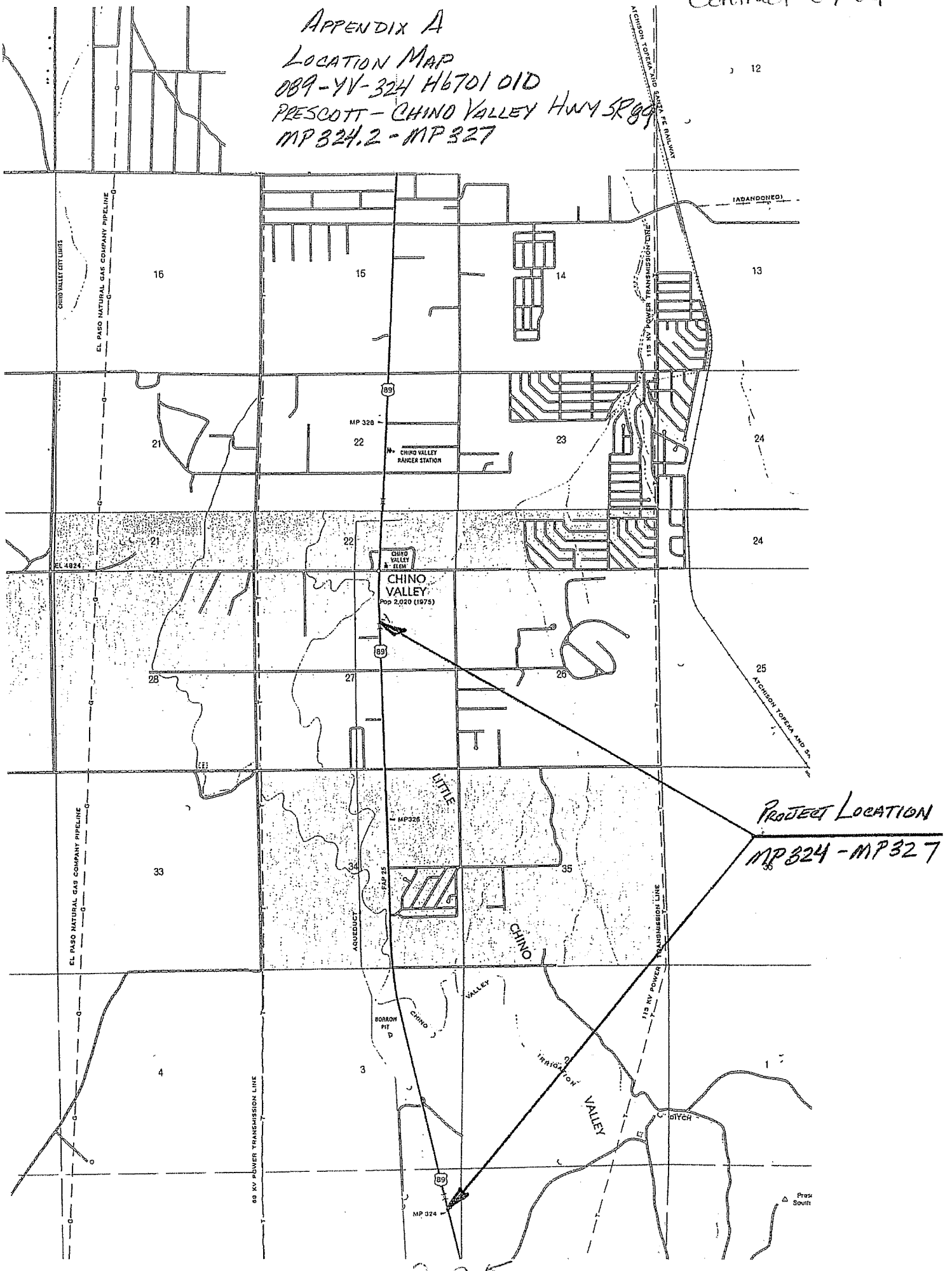
APPENDIX A

LOCATION MAP

089-YV-324 H6701 010

PRESCOTT – CHINO VALLEY HWY SR89

MP 324.2 - MP 327



The following is the distribution of reports, plans, estimates and special provisions as specified in Paragraph 1060 through 1066.

APPENDIX B
DISTRIBUTION LIST

PLANS - SPECIAL PROVISIONS - COST ESTIMATES (Stage I, II, III & IV)

Location	Title	No. Of copies
Town of Chino Valley	Public Works Director	1
Yavapai County	Project Engineer	1
Contracts & Specifications	Transportation Engineer	1
District Prescott	Development Engineer	4
Environmental Planning	Manager	1
Materials	Sr. Pavement Design Engineer	1
Materials	Geotechnical Section Engineer	1
Right-of-Way Plans	Manager	1
Roadside Development	Manager	1
Roadway Design Review Section	Engineer	1
Roadway Design Section	Engineer-Manager	1
Roadway Drainage Section	Engineer-Manager	1
Roadway Predesign Section	Engineer-Manager	1
Statewide Project Mgmt Section	Project Manager	1
Traffic Design	Traffic Engineer	1
Traffic Electrical Design	Traffic Engineer	1
Utilities & Railroad	Engineer-Manager	TBD
Construction Manager At Risk	CMAR	1

CROSS SECTIONS, if required

District Prescott	Development Engineer	4
Materials	Geotechnical Section Engineer	1
Roadway Design Review Section	Engineer	1
Roadway Design Section	Engineer-Manager	1
Roadway Predesign Section	Engineer-Manager	1
Statewide Project Mgmt Section	Project Manager	1
Traffic Design	Traffic Engineer	1
Construction Manager At Risk	CMAR	1

AASHTO REPORT, if required

Roadway Group	Assistant State Engineer	2
Statewide Project Mgmt Section	Project Manager	1

APPENDIX B
DISTRIBUTION LIST

Location	Title	No. of copies
	DRAINAGE REPORT	
District Prescott	Development Technician	1
Roadway Drainage Section	Engineer-Manager	1
Roadway Design Section	Engineer-Manager	1
Statewide Project Mgmt Section	Project Manager	1
Construction Manager At Risk	CMAR	1
	GEOTECHNICAL REPORT	
Materials	Sr. Pavement Design Engineer	1
Materials	Geotechnical Section Engineer	3
Statewide Project Mgmt Section	Project Manager	1
Design Consultant	Project Manager	1
Construction Manager At Risk	CMAR	1
	MATERIALS DESIGN REPORT/PAVEMENT DESIGNS	
Contracts & Specifications	Transportation Engineer	1
District Prescott	Development Technician	1
Materials	Sr. Pavement Design Engineer	3
Statewide Project Mgmt Section	Project Manager	1
Design Consultant	Project Manager	1
Construction Manager At Risk	CMAR	1
	UTILITY REPORT	
District Prescott	Development Technician	1
Utilities & Railroad	Engineer-Manager	1
Statewide Project Mgmt Section	Project Manager	1
Design Consultant	Project Manager	1
Construction Manager At Risk	CMAR	1

APPENDIX C
FINAL COST PROPOSAL

APPENDIX D
PAYMENT REPORT

APPENDIX E

. ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

PRECONSTRUCTION SERVICES
SCOPE OF WORK

089 YV 324 H6701 01D

PRESCOTT – CHINO VALLEY HWY (SR 89)

CENTER STREET TO SOUTH CHINO VALLEY LIMITS

November 2006

APPENDIX E

DEFINITIONS AND TERMS

The definitions and terms listed below are intended to supplement those provided in the Department's Standard Specifications for Road and Bridge Construction, 2000 edition.

Cost Model: A cost breakdown for the construction of the Project that is developed by the CMAR. The cost model will be based on the Department's list of standard pay items. The cost model will evolve as the design progresses and be maintained by the CMAR throughout the preconstruction phase of the project.

Project Manager: The assigned person designated by the Department to administer this contract on behalf of the Department.

Guaranteed Maximum Price (GMP): The maximum compensation payable to the CMAR in performance of the construction of the project as specified in the contract documents. The CMAR guarantees that the actual cost of the construction work to be paid by the Department will not exceed the GMP. All costs for performing the construction work that exceed the GMP will be incurred by the CMAR and not the Department.

Notice to Proceed: A written notice given by the Department to the CMAR fixing the date on which the CMAR shall start to perform the CMAR's obligations under this contract.

Progress Payment Application: The form that is accepted by the Department and used by CMAR in requesting progress payments or final payment and which will include such supporting documentation as is required by the contract documents and/or the Department.

Project Team: The project team consists of the Department, the Design Consultant, the CMAR, and their subconsultants and subcontractors.

LOCATION:

The project 089 YV 324 H6701 01D, Center Street to South Chino Valley Limits, section of the Prescott – Chino Valley Highway, is located on SR 89 in Yavapai County between Jct 89A and Chino Valley. The project limits are from approximately MP 324.2 to MP 327.

PROJECT DESCRIPTION:

SR 89 is currently classified as a rural minor arterial highway within this reach. It serves as a major corridor between Prescott and Chino Valley. The Town of Chino Valley is experiencing very rapid growth along SR 89, with numerous development proposals on the table and more expected as their new sanitary sewer plant comes on line in the coming year. Numerous commercial and private driveways, some with right turn bays, access this section of SR 89.

The project involves the design of proposed improvements, which will fully reconstruct existing SR 89, from approximately MP 324.2 to MP 327.0, to a 4-lane raised median section. The design will accommodate the addition of a future travel lane and right turn lanes with concrete curb and gutter and sidewalk. The typical section is a modified ADOT IS1 section that includes a 20-foot raised median, 14-foot inside lanes north of Road 4 South, 16-foot inside lanes south of Road 4 South, 12-foot outside lanes and 8-foot shoulders. The 16-foot inside lanes south of Road 4 South will accommodate a transition to a likely higher speed section south of the Chino Valley limits. At

APPENDIX E

the four major crossroads the median will be 28-foot to accommodate dual left turn lanes. Left turn lanes will be provided at select locations between crossroads. Curb, gutter and sidewalk ramps will be constructed at the major crossroad radius returns for the ultimate, six-lane configuration. All four-crossroad intersections will eventually be signalized and initial construction will signalize Road 2 South. Conduit will be placed for future signals at Roads 1, 3 & 4 South. The intersection construction will include crossroad improvements and tapers. Two existing drainage structures, including a 24-inch and a 30-inch CMP, will be extended, enlarged, and/or replaced. The other seven cross drainage culverts will be extended to accommodate the roadway widening. Sleeves will be provided for future median landscaping, and the median will include decomposed granite. Seeding will be provided for all disturbed areas. Relocation is required for overhead electric, gas, and communications utilities. New right of way is required for crossroad improvements. An existing Loop Detector Traffic Counter at MP 326 will need to be replaced with new counters at MP 324.85 & MP 326.95. For additional scope description refer to the Final Project Assessment dated November 2005.

This project will follow the Construction Manager at Risk (CMAR) project delivery process. The CMAR project delivery system allows the Department, the Design Consultant and CMAR to work as a unified team. A benefit of hiring a CMAR early in the planning stages of a project is the ability to utilize construction expertise in all aspects of the design and planning.

PROJECT PHASES:

This project is divided into two phases:

Design Phase: The Design Phase is the first phase of the project. During the Design Phase, the prime goal of the Department, the Design Consultant and the Construction Manager at Risk (CMAR) is to develop and complete a design for the project. This is the time period where the Design Consultant prepares the design submittals, provides construction cost estimates and performs other design activities. The CMAR advises the Department and the Design Consultant concerning the design and provides the other services described in this Scope of Work.

Construction Phase: During the Construction Phase of the project the prime goal of the Department, the Design Consultant and the CMAR is to construct the project in accordance with the construction documents. The construction phase will begin when all the following have occurred:

1) The CMAR and the Department agree on a Guaranteed Maximum Price (GMP) and related matters;
2) The CMAR and the Department execute the CMAR Construction Contract and all attachments; and
3) The Department issues a written Notice to Proceed with the Construction Work

The Department is not obligated to have the CMAR construct the project, the CMAR has no right to construct the project, and the CMAR has no claim against the Department if the Department elects to terminate the project or to advertise the project for bid through the Department's construction bidding process.

The Design Phase and the Construction Phase are not mutually exclusive in timing. The Construction Phase may begin before all activities of the Design Phase are complete. Regardless of when or whether the Construction Phase begins, the CMAR will remain obligated to complete all actions in Preconstruction Services Contract documents.

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CMAR PROCESS:

In a CMAR project, the Department, CMAR and Design Consultant have the common goals of producing a quality project within the budget, maximizing the value of the work to the Department, achieving timely completion without undue inconvenience to the public, and producing the work at a reasonable cost to the Department and with a reasonable fee to the CMAR and the Design Consultant.

In promoting these goals, the CMAR shall cooperate and collaborate with the Design Consultant in producing design documents, the cost model, and other items required by the CMAR's and the Design Consultant's contracts. The CMAR shall involve the Department to the appropriate extent in considering alternatives and making decisions; and shall actively provide input for alternatives, improved methods, and other ways to maximize the quality of the project. It is expected that the CMAR will maintain constant communication with the Design Consultant and the Department during the design phase so that this collaboration will be carried out efficiently and at a reasonable cost.

The CMAR shall participate as a member of a Project Team and shall furnish professional pre-construction services during the design of the Project. The CMAR accepts a relationship of trust and confidence between itself, the Department and the Design Consultant. The CMAR agrees to furnish its best skills and best judgment to cooperate with the Department and the Design Consultant during the design of the Project, and in all ways to further the interests of the Department and the Project. The CMAR shall participate in engineering reviews; and shall use its best efforts to see to it that the Project can be constructed in the best, most expeditious, and economical manner consistent with the interests of the Department

The Project will be an "open book" job. The Department may attend any and all meetings of the CMAR firm relating to the Project, and the Department or its designated auditors or accountants shall have access to any and all records of the CMAR or maintained by the CMAR relating to the Project.

GENERAL:

1. Early Involvement: Some of the greatest benefits of the CMAR approach can be gained during the time between the beginning of the CMAR's preconstruction services work and the completion of the cost estimates associated with the Stage II submittal. It is crucial to the success of the project that the CMAR become involved in the design immediately upon receipt of the Notice to Proceed with Preconstruction Services. When the CMAR receives Notice to Proceed, the Design Consultant will provide the CMAR with all of the design documents and data that has been developed to date. The CMAR shall attend a Team Partnering Meeting with the Design Consultant and the Department.

   During this early phase of the work, it is anticipated that there will be a substantial amount of communication between the CMAR and the Design Consultant. This early phase is critical because the Stage II submittal becomes the framework for the project.

2. Proactive involvement of the CMAR: The CMAR shall provide pre-construction services, described herein, in a proactive manner, consistent with the intent of the most current Drawings and Specifications. The CMAR shall promptly notify the Department in writing whenever the CMAR determines that any Drawings or Specifications are inappropriate for the Project and/or cause changes in the scope of work requiring an adjustment in the Cost Model, Project Schedule, GMP Proposals and/or in the Contract Time for the Work, to the extent that such are established.

3. Coordination with the Design Consultant and the Department's Project Manager: The Department has contracted separately with a Design Consultant to provide engineering services for the Project. The Department's Project Manager has no design responsibilities of any nature for this project. None of the activities of the Department's Project Manager supplant or conflict with the design, budget, or any other

APPENDIX E

4. services and responsibilities furnished by subconsultants. All instructions by the Department relating to the Preconstruction Services in this Contract will be issued or made through the Department's Project Manager. All communications and submittals by the CMAR to the Department shall be issued or made through the Department's Project Manager unless otherwise directed by the Department's Project Manager. The Department's Project Manager will not reasonably withhold approval for the CMAR to communicate directly with the Department or the Design Consultant. The Department's Project Manager will have the authority to establish procedures, consistent with this Contract, to be followed by the CMAR and to call periodic conferences to be attended by the CMAR and the CMAR's subconsultants, throughout the term of this Contract.

5. Program Evaluation: As a participating member of the Project Team, the CMAR shall provide the Department with a written evaluation of the Department's Project Program and Project Budget, each in terms of the other, with recommendations about the appropriateness of each.

6. Value Analysis (VA): The CMAR, Design Consultant, and the Department shall participate in a formal VA of the project. The VA is anticipated to occur prior to the Stage II submittal. The VA will be discussed in detail at the Team Partnering Meeting.

7. Meetings: The CMAR, Design Consultant and the Department Project Manager shall attend all regular meetings. The Design Consultant will schedule the project progress meetings every two weeks. The Design Consultant will take minutes and distribute them to the Department and the CMAR within 5 days after the meeting. The CMAR shall promptly review and provide any comments on the minutes to the Design Consultant. These meetings will present general project progress, address design options that arise during the design process, and provide input and direction from Department engineering and operational staff. Team meetings shall be conducted throughout the design portion of the project, to complement the project schedule and design review meetings. The CMAR shall participate in each meeting, report on the project construction schedule, constructibility and the cost model, and provide pertinent input when required. The CMAR shall attend other meetings as required, such as Public Agency and community meetings, and the Team Partnering Meeting.

8. Team Partnering: The CMAR shall attend a partnering meeting involving the Consultant and subconsultants, the CMAR and subcontractors, and the Department. The meeting shall take place within 5 working days after the CMAR's notice to proceed. This meeting will concern: (a) procedures designed to maximum cooperation and collaboration between the Design Consultant, the CMAR, and the Department; (b) communication between Design Consultant and CMAR regarding constructibility, value analysis, and other collaborative efforts; (c) schedules for submittals such as stage plans, specifications, cost estimates, and analysis of alternatives; (d) a partnering escalation ladder; (e) public involvement; (f) and such other matters as may be appropriate. A point of emphasis will be the joint efforts of the CMAR and the Design Consultant to arrive at Stage II submittal and cost estimates.

9. Public Agency or Community Meetings: The CMAR, when requested by the Department or at its own initiative, if approved by the Department, shall attend, make presentations and participate as may be appropriate in public agency and/or community meetings, relating to the Project. The CMAR's prime involvement during these public agency and/or community public involvement meetings will be to address construction scheduling and phasing. The CMAR shall assist the Design Consultant in the preparation of drawings, schedule diagrams, budget charts and other materials describing the Project, when needed for any such meetings.

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CONSTRUCTION MANAGEMENT PLAN

1. The CMAR shall prepare a Construction Management Plan (CMP). The CMAR shall submit the CMP thirty calendar days after receipt of the Stage II submittal. The CMP shall include:

   (1) Project milestone dates and the Project Schedule, including the broad sequencing of the design and construction of the Project,

   (2) investigations, if any, to be undertaken to ascertain subsurface conditions and physical conditions of existing surface and subsurface facilities and underground utilities,

   (3) alternate strategies for fast-tracking and/or phasing the construction,

   (4) separate bidding documents/packages and strategies for the early procurement of long-lead time equipment and/or materials,

   (5) the number of separate sub-agreements to be awarded to Subcontractors and Suppliers for the Project construction,

   (6) permitting strategy,

   (7) safety and training programs,

   (8) construction quality control and assurances,

   (9) a matrix summarizing each Project Team member's responsibilities and roles and

   (10) construction security.

2. The CMAR shall update and add detail to its previous version of the Construction Management Plan to keep it current throughout the pre-construction services phase, so that the CMP is ready for implementation at the start of the construction phase. The update/revisions will take into account:

   (1) revisions in Drawings and Specifications;

   (2) the CMAR's examination of the results of any additional investigatory reports of subsurface conditions, drawings of physical conditions of existing surface and subsurface facilities and documents depicting underground utilities placement and physical condition, whether obtained by the Department, the Designer or the CMAR,

   (3) unresolved permitting issues, and significant issues, if any, pertaining to the acquisition of land and right of way,

APPENDIX E

(4) fast-tracking, if any, of the construction, or other chosen construction delivery methods,

(5) the requisite number of separate bidding documents to be advertised,

(6) the status of the procurement of long-lead time equipment and/or materials

(7) funding issues identified by the Department and

(8) input from the public involvement process.

PROJECT SCHEDULE

1. The CMAR shall prepare, update and maintain the Project Schedule to be used by the Project Team using input from other Project Team members. The CMAR shall make its first submittal of the Project Schedule to the Department no later than two weeks after the effective date of the notice to proceed. The schedule will cover the entire project duration from design through completion of construction. The fundamental purpose of the "Project Schedule" is to identify, coordinate and record the tasks and activities to be performed by all the Project Team members. The Project Team will use the Project Schedule as a basis for managing and monitoring all members' compliance with the schedule requirements of the Project. Each Project Team member is responsible for its compliance with the Project Schedule. The Project Schedule will be consistent with the most recent revised/updated Construction Management Plan. The Project Schedule shall be developed using the Critical Path Method (CPM) technique using Primavera software. The Project Schedule will be presented in graphical and tabular reports as agreed upon by the Project Team.

   The Project Schedule will include all tasks and submittals required by each member of the Project Team to identify long lead time items, Right-of-Way transactions, Utility Relocation Activity, Permitting Requirements, etc. If Project phasing is required, the Project Schedule will indicate milestone dates for the phases once determined. The activities in the Project Schedule will directly correlate with the cost model. The Construction Portion of the Project Schedule shall include resource loading for manpower and cost loaded for cash flow. The manpower loading shall include the daily manpower required to complete the task as shown on the CPM Schedule.

2. The CMAR shall include the services and activities required of the Department's Project Manager, Design Consultant and CMAR, including all construction phase activities in the Project Schedule. The CMAR shall incorporate the design schedule supplied by the Design Consultant and shall coordinate with the Design Consultant to finalize and incorporate design milestones into the Project Schedule. The Project Schedule will detail activities to the extent required to show:

   (a) the coordination between Stage II, III and IV design,

   (b) separate long-lead time item procurements,

   (c) permitting issues,

   (d) land and right-of-way acquisition, if any,

   (e) bid packaging strategy and awards to Subcontractors and Suppliers,

   (f) major stages of construction,

APPENDIX E

(g) construction start-up, and

(h) final acceptance of the completed Work by the Department.

The Project Schedule shall include, proposed activity sequences and durations for design, procurement, construction and testing activities, milestone dates for actions and decisions by the Project Team, preparation and processing of shop drawings and samples, delivery of materials or equipment requiring long-lead time procurement, milestone dates for various construction phases, total float for all activities, relationships between the activities, the Department's final acceptance requirements showing portions of the Project having completion priority, and proposed dates for Substantial Completion and when the Work would be ready for final acceptance.

3. The CMAR shall update and maintain the Project Schedule with assistance from the Project Team throughout the pre-construction services phase so that the Project Schedule will not require major changes at the start of the construction phase. The CMAR shall provide updates and/or revisions to the Project Schedule for use by the Project Team, whenever required, but not less often than monthly. The CMAR shall include a narrative describing its analysis of the progress achieved to-date vs. that planned, any concerns regarding delays or potential delays, and any recommendations regarding mitigating actions. The Project Schedule update shall be submitted to the Department's Project Manager by an agreed upon date specified each month to be reviewed and accepted.

4. Long-Lead Time Item Procurement: The CMAR shall provide the Department's Project Manager with a list of long-lead items, if any, which must be procured during the pre-construction phase to meet the Project Schedule requirements and recommend a schedule for their procurement.

   a. The Department may procure such long-lead items to the extent the Department determines that it is in its own best interest to do so. Upon the Department's acceptance of any CMAR GMP Proposals, which includes such long-lead time items, the Department will assign the applicable procured items to the CMAR, who shall accept responsibility for such items as if they were initially procured by the CMAR.

   b. If the Department chooses not to procure long-lead time items prior to acceptance of a GMP Proposal, the CMAR shall list the items and show a delivery schedule. The CMAR shall notify the potential suppliers, subcontractors, and fabricators of the required delivery schedule so that it will be taken into consideration, if necessary, in their bids.

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DESIGN DOCUMENT REVIEWS

1. The CMAR shall periodically evaluate the availability of labor, materials, equipment, building systems, cost-sensitive aspects of the design; and other factors that may impact the Cost Model, GMP Proposals and/or the Project Schedule.

2. The CMAR shall identify, in conjunction with the Project Team, those additional surface and subsurface investigations that are required to provide the necessary information for the CMAR to construct the Project. If, after completion of pre-construction services, the CMAR may provide additional investigations to improve the adequacy and completeness of the site condition information and make that data available with the Construction Documents. The CMAR shall be responsible for the time and cost required to obtain such additional investigations, except as otherwise provided by specific Supplemental Agreement.

3. The CMAR shall meet with the Project Team as required to review designs during their development. The CMAR shall thoroughly familiarize itself with the evolving documents through Stage II, III and IV design. The CMAR shall proactively advise the Project Team and make recommendations on factors related to construction costs, and concerns pertaining to the feasibility and practicality of any proposed means and methods, selected materials, equipment and building systems, and, labor and material availability. The CMAR shall also advise the Project Team on proposed site improvements, earthwork, excavation and foundation considerations, as well as, concerns that exist with respect to coordination of the Drawings and Specifications. The CMAR shall recommend cost effective alternatives.

4. The CMAR shall support the Design Consultant in development of the Storm Water Pollution Prevention Plan (SWPPP) and related plans and specifications.

5. The CMAR shall conduct constructibility and biddability reviews of the Drawings and Specifications, as required. The reviews will attempt to identify all discrepancies and inconsistencies in the Construction Documents especially those related to clarity, consistency, and coordination of Work of Subcontractors and Suppliers.

    a. Constructibility Reviews: The CMAR shall evaluate whether (a) the Drawings and Specifications are configured to enable efficient construction, (b) design elements are standardized, (c) construction efficiency is properly considered in the Drawings and Specifications, (d) module/preassembly design are prepared to facilitate fabrication, transport and installation, (e) the design promotes accessibility of personnel, material and equipment and facilitates construction under adverse weather conditions, (f) sequences of Work required by or inferable from the Drawings and Specifications are practicable, and (g) the design has taken into consideration, efficiency issues concerning: access and entrance to the site, laydown and storage of materials, staging of site facilities, construction parking, and other similar pertinent issues.

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b. Biddability Reviews: The CMAR shall check cross-references and complementary Standard Drawings and sections within the Specifications, and in general evaluate whether (a) the Drawings and Specifications are sufficiently clear and detailed to minimize ambiguity and to reduce scope interpretation discrepancies, (b) named materials and equipment are commercially available and suitable for the project, (c) the design provides as-built data, (d) the Specifications include alternatives in the event a requirement cannot be met in the field, (e) and the Project is likely to be subject to differing site conditions considering the data on subsurface conditions, physical conditions of existing surface and subsurface facilities and physical conditions of underground utilities made available by the design or resulting from conditions inherent to a given type of work.

c. The results of the reviews shall be provided to the Department, in formal, written reports clearly identifying all discovered discrepancies and inconsistencies in the Drawings and Specifications with notations and recommendations made on the Drawings, Specifications and other documents. If requested by the Department, the CMAR shall meet with the Department's Project Manager and Design Consultant to discuss any findings and to review the reports.

d. The CMAR's reviews shall be from a contractor's perspective. While these reviews will serve to reduce the number of Requests for Information (RFIs) and changes during the construction phase, responsibility for the Drawings and Specifications shall remain with the Design Consultant and not the CMAR.

e. Notification of Variance or Deficiency: It is the CMAR's responsibility to assist the Design Consultant in ascertaining that the Construction Documents are in accordance with applicable laws, statutes, ordinances, building codes, rules and regulations. If the CMAR recognizes that portions of the Construction Documents are, or may be, at variance with applicable laws, statutes, ordinances, building codes, rules and regulations the CMAR shall promptly notify the Design Consultant and the Department in writing, describing the potential variance or deficiency.

f. The Project Team will routinely identify and evaluate any alternate systems, approaches, design changes, etc. that have the potential to reduce project costs and/or improve the project quality while still delivering a quality and functional product. The Department must approve all such changes. The Design Consultant shall have responsibility for the incorporation of the alternatives in the Drawings and Specifications.

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COST MODEL, AND COST ESTIMATES

1. Within two weeks following the Stage II design submittal, the CMAR shall review all available information regarding the design and scope of the Project, and based upon that review shall develop a Cost Model for review and approval by the Department. During the review period, the Cost Model will be compared with the estimate prepared by the Design Consultants and a Department estimate. These estimates will be used to verify the accuracy of the cost model. The CMAR shall make adjustments to the cost model if required. Once approved by the Department, the Cost Model will be continually updated and kept current as the design progresses throughout the pre-construction phase until a final GMP for the entire Project is established. The Cost Model will be the best representation of what the complete functional Project's construction costs will be. The CMAR shall communicate to the Project Team, any assumptions made in preparing the Cost Model. The Cost Model will support the CMAR's construction cost estimates and may be broken down initially as dictated by the available information. The Cost Model will also include allowances as agreed to by the Project Team, including: (a) allowances for potential additional quantities and/or additional Work that the Department may require, and (b) any costs related to investigations.

2. After receipt of the Designer's most current documents from certain specified design milestones, the CMAR shall provide a detailed written report to the Project Team regarding the impact of and changes to the Cost Model based on the CMAR's review of design documents made available at the specified design milestone. The Department's Project Manager, Design Consultant and CMAR shall reconcile any disagreements on the estimate to arrive at an agreed upon estimate for the construction costs based on the scope of the Project through that specified design milestone. The design milestones applicable to this paragraph are: Stage II, Stage III, and Stage IV design. If no consensus is reached, the Department will make the final determination. If the Project Team requires additional updates of the Cost Model beyond that specified in this paragraph, the CMAR shall provide the requested information in a timely manner.

3. If at any point, the estimate submitted to the Department exceeds estimates previously agreed upon by the Project Team or other key aspects of the Cost Model or the Department's Project Budget, the CMAR shall make appropriate recommendations to the Department's Project Manager and Design Consultant on means/methods, materials, and/or other design elements that it believes will reduce the estimated construction costs, (without altering the Department's basic program) such that it is equal to or less than the established Project Team's target and/or the Project Budget.

4. The Cost Model and its backup documentation shall comply with the following requirements:

    (a) include unit prices and quantity take-offs using the Department's standard pay items,

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(b) detail all other allowances and unit price work shown and specified in the detailed design documents and

(c) identify material and equipment costs, labor costs, General Conditions costs, hourly labor rates, payment for pre-construction services and total cost. Labor costs in the Cost Model shall include employee benefits, payroll taxes and other payroll burdens. The total cost for any portion of the Work to be performed by Subcontractors will include Subcontractor overhead and profit.

5. As required, the CMAR shall submit to the Department a final Cost Model based on the Stage IV design set of Drawings and Specifications for the entire Project or any portion thereof.
6. The CMAR shall submit to the Department a cash flow projection for the Project based on the current updated/revised Project Schedule and the anticipated level of payments to the CMAR during the preconstruction and construction phases.

GUARANTEED MAXIMUM PRICE PROPOSALS

1. Guaranteed Maximum Price (GMP) Proposals for the entire Project, or portions thereof, will be the sum of the maximum cost of the Work, and include the CMAR's construction services fee. The CMAR guarantees to complete the project at or less than the final approved GMP Proposal amount (the contract amount for the construction phase contract) and agrees that the CMAR will be solely responsible for any excess of the actual cost of the work over the GMP.

2. The proposed GMP for the Work will be presented in a format acceptable to the Department. The Department may request a GMP Proposal at any time during the pre-construction phase. Any GMP Proposals submitted by the CMAR shall be based on and consistent with the current update/revised Cost Model at the time of the request, the associated estimates for construction costs and shall include any clarifications or assumptions upon which the GMP Proposal(s) are based.

3. The CMAR, in preparing any GMP Proposal, shall obtain three sets of construction documents, (including all addenda) from the Design Consultant. The CMAR shall prepare its GMP based on the most current completed construction documents at that time. The CMAR shall send one set of its GMP and completed construction documents to the Department's Project Manager, keep one set and return the third set to the Design Consultant to document the basis of the GMP.

4. An updated/revised Project Schedule will be included with any GMP Proposal(s) that reflects the scope of Work shown in the current set of design documents upon which the GMP Proposal(s) is based. Any such Project Schedule updates/revisions will continue to comply with the schedule requirements.

5. In the event the CMAR elects, at its sole discretion, to maintain a construction contingency within the GMP, the contingency must be acceptable to the Department. In addition, the terms and conditions regarding use of the contingency during the construction phase will be established by the Department and reflected in the contact for that phase of the Project.

APPENDIX E

GMP PROPOSAL(S) REVIEW AND APPROVAL

1. The CMAR shall meet with the Department's Project Manager and Design Consultant to review any GMP Proposal(s) and the written statement of its basis. In the event the Department's Project Manager or Design Consultant discovers inconsistencies or inaccuracies in the information presented, the CMAR shall make adjustments as necessary to the GMP Proposal, its basis or both.

2. Upon receipt of any GMP Proposal from the CMAR, the Department may submit the same documents that were used by the CMAR in developing his GMP to an independent third party or to the Design Consultant for review and verification. An independent estimate of the Cost of the Work will be developed and used to review the Project Schedule for the associated scope of the GMP Proposals.

3. If the CMAR's GMP Proposal is greater than the independent estimate, the Department may require the CMAR to reconfirm its GMP Proposal. The CMAR shall accept the independent estimate for the Cost of the Work as part of his GMP or present a report to the Department within seven days explaining and substantiating the differences. The CMAR may be requested to, or at its own discretion, submit a revised GMP Proposal for consideration by the Department. At that time the Department may do one of the following.

   a. Accept the CMAR's original or revised GMP Proposal, if within the Department's budget, without comment.

   b. Accept the CMAR's original or revised GMP Proposal that exceeds the Department's budget, and indicate in writing to the CMAR that the Project Budget has been increased to fund the differences.

   c. Reject the CMAR's original or revised GMP Proposal because it exceeds either or both the Department's budget and the independent estimate, in which event, the Department may terminate this Contract and/or elect to not enter into a separate contract with the CMAR for the construction phase associated with the scope of Work reflected in the GMP Proposal.

4. If during the review and negotiation of the GMP Proposals design changes are required, the Department will authorize and cause the Design Consultant to revise the Construction Documents to the extent necessary to reflect the agreed-upon assumptions and clarifications contained in the final approved GMP Proposal. Such revised Construction Documents will be furnished to the CMAR. The CMAR shall promptly notify the Designer and Department's Project Manager if any such revised Construction Documents are inconsistent with the agreed-upon assumptions and clarifications.

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
STATEWIDE PROJECT MANAGEMENT GROUP

PART B:

DICTIONARY
OF
STANDARDIZED WORK TASKS

March 2006

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PART B: DICTIONARY OF STANDARDIZED WORK TASKS

SECTION 400 - DESIGN WORK PERFORMED BY CONSULTANT

The Consultant shall be responsible for providing the engineering services required to accomplish the work products identified in the Project Scope of Work. The services may include the tasks of data preparation, data interpretation, and document preparation including scoping documents, reports, corridor management plans, contract plans, special provisions, construction estimate, and post-design services.

402 Partnering Process

The Consultant and subconsultants shall participate in a Partnering Process consisting of the following items:

- Scope Clarification Meeting
- Design Partnering Kick-Off Workshop
- Participation in the Partnering Evaluation Program (PEP)
- Construction Partnering Workshop
- Project Close-Out

405 AASHTO Design Criteria Report

Any changes to the design criteria which result in the need for a design exception shall be submitted to the Roadway Group for approval. The request shall describe the deficiencies not previously approved which are not being corrected, and the justification for the design exception. The report shall be developed consistent with Section 200. ADOT will forward the design exception request to FHWA, if necessary. The Consultant is responsible for providing copies for ADOT and FHWA. The request shall be submitted a minimum of fifteen (15) calendars days prior to the Stage II design submittal, in accordance with Section 1060.

410 Surveys and Mapping

The Consultant shall review data provided by ADOT. Any field surveys required shall be suitable for contract documents preparation and meet the technical requirements of ADOT and the State Board of Technical Registration.

A. All surveys and mapping for projects utilizing existing roadway(s) shall be referenced and tied directly to the existing as-built roadway centerline. The centerline shall be re-established in its original position by locating, marking, staking and referencing the PC, PT, TS, SC, CS, ST, PI (if possible), and a minimum of fifty (50) feet station intervals along the curves and one hundred (100) feet station intervals on tangents. The use of offset baselines for re-establishing or defining the existing centerline is not permitted unless approved in advance by ADOT. The centerline stationing of the project shall be on ADOT's established field stationing.

B. Completed surveys shall be submitted in permanently bound books (3-ring binders are not acceptable) with the final plans. The surveys shall include locations, stakes and references of control points, (including the beginning and ending points of the project), PC's, PT's, TS's, SC's, CS's, ST's, and PI's (if possible) of curves, POT's with a maximum interval of one thousand (1,000) feet, and bench marks on alternate sides of the roadway with a maximum interval of five hundred (500) feet. Any survey data provided must be certified by an Arizona Registered Land Surveyor. Any coordinates used shall comply with the Arizona State Plane Coordinate System.

C. Surveys may include, as applicable:

1. Base line control
2. Control for aerial mapping
3. Right-of-Way surveys
    a) Section corner and land ties
    b) Existing right of way monumentation
    c) Staking of new right of way for appraisal purposes
    d) New right of way monumentation
    e) A "Results of Survey" map
4. Topographic surveys
5. Roadway drainage surveys
6. Utility locating - set control points with coordinates and elevations at five hundred (500) ft. maximum intervals adjacent to the road and along the utility lines (See Section 430)
7. Centerline staking, centerline of each roadway, as applicable for field review (lath stakes at PC, TS, SC, CS, ST, PT, and PI (if possible) at approximate two hundred (200) ft. intervals, and at selected locations if required to define the approximate limits of construction).
8. Centerline and edge elevations of existing pavement at fifty (50) ft. intervals
9. Ties to Arizona State Plane Coordinates
10. Final alignment staking
11. Crossroads tie-ins, turnouts and driveways
12. Above ground utilities

D. The Consultant shall obtain any permits that may be required prior to beginning field work. A traffic control plan may also be required. Preparation of surveys shall conform to applicable documents referenced in Section 200, including (but not necessarily limited to) procedures, record-keeping requirements, equipment use, and safety precautions.

E. Unless otherwise directed by the ADOT project manager, the Consultant shall be responsible for selecting a scale that results in good plan clarity. The following scales are suggested:

1. 1" = 500' (Drainage map and R/W key sheet)

2. 1" = 50' (Construction Plans and R/W maps)

3. 1" = 30' (Landscape and Irrigation Plans)

4. 1" = 20' (Intersections, urban streets, and other items of considerable detail)

F. The Consultant may be responsible for setting R/W markers. R/W markers shall be set by an Arizona Registered Land Surveyor after acquisition of R/W, or, in some instances, after construction. All R/W drawings and legal instruments shall be approved and sealed by an Arizona Registered Land Surveyor.

G. The Consultant may be responsible for delineating the R/W so that utility companies may prepare relocation plans. Delineation with strips of plastic flagging attached to lath located at intervals shall provide a clear delineation of the R/W. This work shall be completed immediately prior to the date that utility company personnel are scheduled to conduct a field survey of the project.

H. Completed surveys and maps shall be recorded in an acceptable format. Upon final approval, the books, maps and CADD files, and other diskettes, shall be submitted to the ADOT project manager.

415 Materials Design

416 Geotechnical Investigation

Geotechnical requirements contained in the Materials Preliminary Engineering and Design (MPE & D) Manual and AASHTO Manual (Reference Section 200) on Subsurface Investigations shall be considered as minimum requirements. These are not intended to preclude innovative methods of Geotechnical investigations and testing the Consultant may propose. Laboratories selected by the Consultant to perform construction materials testing and analyses must meet the requirements of ADOT's "System for the Evaluation of Testing Laboratories." The Geotechnical Investigation will include appropriate reports, as required, for bridge and retaining/sound barrier wall designs and pavement design.

Prior to submitting a proposal for geotechnical services, the ADOT Project Manager will schedule a meeting with the prime designer, the geotechnical consultant and the ADOT Geotechnical Design Section project team member. Project geotechnical issues will be discussed at this meeting and a consensus geotechnical work plan will be developed. Any subsequent changes due to access limitations,

environmental restrictions, etc., will be reviewed and approved by the ADOT Geotechnical Deign Section team member prior to the changed work being performed.

A. The Consultant shall perform a Geotechnical investigation of the project in accordance with the requirements of ADOT - the MPE & D and Materials Testing Manuals. (Reference Section 200).

B. The Consultant shall secure an access permit from the appropriate agency, if required, which may at a minimum require the preparation of an equipment access plan, description of equipment types, a plan of the test hole locations, etc. The Consultant shall adhere to all traffic control requirements when taking samples on existing roadways. A traffic control plan may be required.

C. The results of the Geotechnical investigation shall be contained in the Geotechnical Report and the Bridge Foundation Report, if applicable. The Geotechnical investigation shall include all necessary sampling and laboratory testing and analyses of materials.

Upon approval of the Geotechnical report, the Consultant may proceed with preparation of the pavement and/or foundation designs and the Materials Design Memorandum.

D. The Consultant's Geotechnical investigation shall include, but not be limited to the following as appropriate:

1. Roadway structural section requirements and the availability of structural section materials
2. Location and depths of topsoil
3. Soil shrinkage/swell characteristics
4. Slope stability in embankment/excavation locations
5. Groundwater pH and resistivity conditions requiring design considerations
6. Design values for active, at rest, and passive soil pressures
7. Allowable design loads or pressures for each foundation type
8. Design methods for shallow and deep foundations
9. Potential imported borrow site(s) meeting the requirements for the material(s) required (see also Section 417)
10. Design alternatives based on Geotechnical findings

E. The Consultant shall include in the Special Provisions all notes related to materials found on the final construction plans and not already covered by the Specifications.

417 Earthwork

The Consultant shall attempt to achieve an approximate earthwork balance for the project consistent with good engineering practice based upon the type of material and with consideration given to environmental mitigation measures unless otherwise directed. This may be accomplished by: a) refining roadway geometry (alignment and/or profile) utilizing ADOT Standard Drawings C-02 for slopes; b) adjustment of ditch widths and/or back slope rates to obtain excavation of additional suitable material; c) flattening of embankment slopes or creation of 'false cuts' to dispose of excess material; or combinations of a), b) and c). Adjustments shall not adversely affect water quality and must be coordinated with the project team, including the USFS coordinator, if applicable. Cost of additional right-of-way and environmental concerns must be weighed in determining the most feasible solution for the project.

When a project requires borrow or waste sites, the Consultant shall investigate and recommend the site requirements as outlined under paragraphs A, B, C and/or D below:

A. Current ADOT Borrow Pits

The investigation shall begin with a review of current borrow pit information available in the ADOT Material Section. "Current" in this context means that ADOT has or is expected to have licenses for any recommended pits that will not expire until after the estimated construction completion date. Note that ADOT is not necessarily licensed for wasting at all current borrow pits. The results of the investigation shall be included in the Consultant's Geotechnical investigation (see Section 416).

B. Commercial Borrow Pits

Commercial borrow pits are an acceptable alternative to ADOT borrow pits. If recommended, the analysis and test results of the commercial borrow materials shall be included in the Consultant's Geotechnical investigation (see Section 416).

C. New Borrow Pits

The licensing of new borrow pits for ADOT use is a lengthy process and should be considered only in the absence of acceptable current ADOT or commercial borrow pits. If the locating, testing and environmental analysis of any new borrow pits is required to complete the design of the project, this work will be added to the contract by contract modification. The analysis and test results shall be contained in a separate report submitted by the Consultant not later than the Stage III submittal.

D. Waste Sites

If it is determined that a designated waste site is required, the Consultant shall investigate and recommend the nearest site where material can be wasted. (See Section 455)

418 Special Materials

In the case where a special material(s), i.e. a material with characteristics and design values out of the normal range, is required to meet exacting design requirements, the Consultant shall coordinate with the ADOT project manager, Materials Section, and/or the Engineering District before changing the design or researching the location of such material(s).

419 Pavement Design

A. The Consultant shall prepare a pavement design in accordance with the requirements of the ADOT MPE & D Manual.

B. New pavement design shall conform to the approved AASHTO method. Structural overlay design shall conform to the Structural Overlay Design for Arizona (SODA) method.

C. The Consultant's proposed pavement design recommendation shall be included in the Pavement Design Summary as described in the ADOT MPE & D Manual, section 505.00. "Materials Section Design Report Standard Items" shall be used in the preparation of the pavement design report.

D. The Material Design Memorandum shall contain the Consultant's final recommendations for the proposed pavement design, including recommendations for special provisions and construction procedures, as described in the ADOT MPE & D Manual section 505.00, including the use of "Material Section Design Report Standard Items".

420 Environmental Studies

Activities that require soil and/or vegetation disturbance such as Geotechnical investigations, surveys, etc. may not begin until the appropriate environmental clearance (i.e., cultural resources, hazardous materials, or biological evaluations) is issued. The project's environmental footprint shall consider all utility relocation work required for the project. ADOT Environmental and Enhancement Group, in coordination with the affected federal, state and local agencies and jurisdictions, will issue the required clearance.

425 Public Information Meetings and Public Hearings

The Consultant shall provide staff and/or materials for public information meetings as outlined below if they are found to be necessary. ADOT will be responsible for advertisement and will make arrangements for the public information meeting. ADOT will provide a moderator and any liability insurance required.

A. Public Information Meetings

The Consultant and staff shall be available, at five (5) workdays notice, to attend meetings or make presentation at the request of ADOT. The purpose of these meetings shall be to inform the public of and answer questions regarding the scope, details, and anticipated schedule of the project. Such meetings and presentations may be held at any hours between 8:00 AM and 12:00 midnight on any day of the week, except legal holidays. The Consultant will be responsible, as applicable, for the preparation of graphics, hand-out materials, minutes of the meetings, audiovisual displays and similar material for such meetings. All such materials shall prominently identify ADOT. The Consultant shall expect to work with the team to finalize the agenda for any public meetings.

B. Public Information News Releases

The Consultant and staff shall be available, with one workday of notice, to support the ADOT preparation of newspaper articles, newsletters, flyers, radio and TV announcements, etc. and to assist ADOT with responses to verbal and written questions from the media and the general public. The purpose of these news releases shall be to provide the media and public with the latest information on the project scope, details and schedule of the project.

430 Utilities and Railroads

A. General

All work shall be performed in accordance with ADOT's *Guide for Accommodating Utilities on Highway Right-of-Way* and *Utility Coordination Guide for Design Consultants.*

B. Definitions

Utility - A facility which transmits or distributes communication, cable television, electricity, heat, gas, oil, crude products, water, sewer, waste or any other similar commodity which directly or indirectly serves the public.

Utility Company - A municipality, public service corporation, utility district, etc., which owns and operates utilities that serve the general public. Unless otherwise noted, the procedures to be used with railroad companies will be the same as those used with utility companies.

Prior Rights documentation - Documents showing that the utility company's facility predates the acquisition of the property for highway purposes, or that it occupies an easement or other compensable land right. Such documents provide verification that the State is obligated to compensate the utility company for the cost of relocations or adjustments required to accommodate the highway project.

U & RR - Utility and Railroad Engineering Section, Arizona Department of Transportation.

C. Previous Information

The Consultant shall use all available utility location information including that obtained during the DCR phase. This information, and additional information gathered later, shall be shown on the plans prior to submittal to the utility companies for review.

D. Identification of Utilities

1. By Design Consultant - The Design Consultant shall contact and coordinate with all the utility companies serving the project area to obtain utility facility location records and as-built information.

2. By Locating Consultant - The Design Consultant shall prepare and furnish a base map with ground controls at intervals of no more than five hundred (500) feet together with a description of the desired area to U & RR for horizontal utility designation. This mapping will be used by the locating consultant for identification and horizontally locating all utilities. This will be accomplished prior to the completion of Stage II plans. The map shall be presented on diskettes or CDs using current ADOT CADD standards. The Design Consultant shall provide a list of requested potholes to U & RR, for use by the Locating Consultant, for utilities that may conflict with the project. This pothole data will be obtained prior to completion of the Stage III plans.

3. Railroad information - The design Consultant shall request U & RR to make the initial contact with the railroad company to obtain railroad information if railroads are involved in the project prior to the design kickoff meeting.

431 Utilities Conflicts and Adjustments

A. The Consultant shall determine all utility conflicts which require the utility to be relocated or adjusted and shall advise U & RR and the utility company.

B. The Consultant shall advise U & RR of upgrades or betterments requested by utility companies.

C. When property is acquired for a highway project, private utility issues are resolved as part of the right of way acquisition. The Consultant shall coordinate these and any private utility issues with the ADOT Right of Way Coordinator and Project Manager.

D. The Consultant shall arrange and conduct utility coordination meetings to facilitate identification and resolution of conflicts based on project needs as requested by the ADOT Project Manager and the U & RR Coordinator.

E. The Consultant shall be responsible for reviewing relocation plans produced by utility companies to assure that all utility conflicts with project plans and with planned utility relocations are eliminated, that proposed utility installations conform to ADOT's *Guide for Accommodating Utilities on Highway Right-of-Way* and that the plans meet ADOT permit requirements.

F. The Consultant shall solicit submittal of and verify that prior rights documentation submitted by utility companies represent the correct relocation area and shall submit this reviewed documentation to the U & RR coordinator. The request for prior rights shall take place after the Stage II submittal. Complete prior rights documentation shall be submitted to U & RR no later than the Stage III submittal.

G. Only U & RR will authorize utility companies to start design for relocation of their facilities where they have prior rights and want reimbursement for their design.

H. The Consultant shall prepare draft Utility Special Provisions and submit them to U & RR for comment. This includes Section 107, Force Accounts and Line Item Specifications. Specifications shall be drafted starting at Stage III and progress with the project to the PS&E Stage.

I. With each stage submittal listed below the Consultant shall submit a Utility Report. The Report shall detail the recent events with regard to the progress of the utility conflicts and mitigation effort. The efforts made shall be in accordance with a sequence of events established in the *"Utility Coordination Guide For Design Consultants"*.

1. Within the first thirty (30) days after Notice to Proceed (NTP) the Consultant shall prepare a Utility Report containing a list of all utility companies in the project area, the utility company contact person and their phone number for submittal to U & RR.

2. At Stage II the Utility Report shall contain an update of the listing provided in item 1 above plus an initial cost evaluation. All right of way necessary for utility relocations shall also be identified.

3. At Stage III the Utility Report shall contain all of the above plus a list by prior rights of who is responsible for payment of relocation work, a list of the mitigation measures by utility, a

summary of the meetings held with each utility company - what was discussed and when, what actions were taken to arrive at the selected mitigation measure, what pothole data were requested and provided, a copy of all correspondence between the Consultant and each utility company, a preliminary estimate of ADOT's cost for utility relocations and betterment requests by utility company for work to be included into the ADOT project. Final mitigation measures shall be approved by the Utility and Railroad Engineering Section.

4. At Stage IV the Utility Report shall contain all of the above plus any changes to what was previously presented, a notification of approval of utility company relocation plans as to conformity with the project design and standard ADOT procedures and practices, a construction schedule for each utility, a final cost estimate for each utility with approved prior rights, a final cost estimate for each utility desiring betterments be included in with the project design and the Final Utility Clearance Letter.

J. The Consultant is to work closely with the utility company and the U & RR coordinator to determine the relocation requirements of the utility facility. The Consultant shall inform ADOT Right of Way on or before the Stage II submittal if new right of way is required which exceeds what is needed for the highway improvements.

K. ADOT's Roadside Development Section (landscape and irrigation), Transportation Planning Division (Traffic Counter Systems) and Transportation Technology Group (FMS) shall be treated as utilities and consulted about their needs during the project development process. New electric service drops and water connections for planned landscape irrigation systems, lighting, traffic signals and FMS facilities shall be included in the scope of the project.

432 Utility Plans

A. The Consultant shall indicate all existing utilities in plan view on the Stage II plans. This should include utility poles, pedestals and other aboveground appurtenances with an indication of overhead line direction and all underground utilities, including drainage facilities.

B. The Consultant shall indicate potential areas of conflict between utility facilities and project improvements. The Consultant shall work with the utilities to resolve all conflicts. Project plans are to be adjusted as much as possible to avoid utility conflicts without impacting the needs of the project or public safety. Vertical locations of underground utilities shall be shown in profiles and on cross sections or details at Stage II at approximate normal elevation. Pothole data will be made available to utility companies no later than Stage III plans.

C. The Consultant shall furnish copies of the Stage II, III, IV and PS&E project plans to U & RR and each utility which has facilities in the area. The Consultant shall furnish copies of cross sections to U & RR and, upon request, to the utility company . Cross section plans will be required when existing utility facilities have been installed parallel to the roadway centerline within ADOT's right of way. Cross section plans shall show the location and depth of utilities running parallel to the roadway centerline. The size of the plans, 1/2 size or full size, shall be as requested by the utilities. In all cases, plans shall be scaleable, i.e., full size or true half-size. The Consultant shall send plans to the utility companies, receive the comments and responses, and provide U & RR copies of all correspondence to and from the utility companies. Utility comments and their resolutions shall be

included on the appropriate Stage Comment Resolution Form and distributed to all team members ten working days after the Comment Resolution Meeting.

D. The Consultant shall include utility relocation plans no later than the Stage IV submittal.

433 Utility Relocations and Adjustments

Where a utility relocation may be required:

A. The Consultant shall identify possible alternatives (including joint use of trenches) to minimize the number of utility conflicts and minimize the cost of mitigating conflicts.

B. The Consultant shall notify U & RR promptly upon determination that relocation of a utility company facility is required. Where the utility relocation is to be included as part of the project and where the ADOT contractor will perform the work, the Consultant shall provide U & RR with design cost details, drawings and a summary of the construction costs for the work to be billed. The Consultant shall use input and drawings supplied by the utility company to the extent possible.

C. U & RR will determine, by examination of prior rights documentation provided by the utility company, the utility's rights to occupy the area of conflict and who is responsible for the cost of the relocation. U & RR will notify the utility company to relocate at its own expense, or will obtain the necessary cost estimates and prepare the necessary utility agreements to allow for payment of utility relocation work when it is at ADOT expense.

D. At the request of the utility and/or the U & RR coordinator, utility adjustments or installations may be included in the plans and specifications for work to be performed by ADOT's contractor. This may require a JPA or Utility Agreement between the utility and ADOT. The PM would prepare a JPA and the U & RR coordinator would prepare a Utility Agreement. The decision to include this work shall be determined no later than the Stage III submittal date. Initial cost estimates shall be provided with the Stage III submittal to assist programming and budgeting efforts.

1. Utilities with prior rights--ADOT is responsible for cost:

   a. Consultant shall advise U & RR of utility company's request for work to be included with ADOT's contract.

   b. Consultant shall provide an estimate of the cost, or review and comment on cost estimates provided by the utility company.

   c. Consultant shall cooperate with each utility company to ensure that adequate information is included in the bid package.

2. Additions, betterments, and utilities lacking prior rights--utility company is responsible for cost:

   a. Consultant shall advise U & RR of utility company's request, and shall advise the utility company that approval of its request is subject to concurrence by ADOT.

b. Consultant shall provide an estimate of the cost, or review and comment on cost estimates provided by the utility company.

c. Consultant shall cooperate with utility company to ensure that adequate information is included in the bid package.

d. The Consultant shall provide U & RR and the Project Manager the actual cost of design and expenses for utility relocation and adjustments for inclusion in the JPA or Utility Agreement.

434 Utility Special Provisions and Clearance Letter

A. Special Provisions

The Consultant shall prepare Special Provisions and submit them to each affected utility company and U & RR for comment at Stage III, IV and at PS&E.

The Utility Special Provisions shall include the following:

1. List of utility companies in the area, and contact person's name and telephone number.

2. A statement that there are no utility conflicts or a list of utilities that are in conflict.

3. Work to be performed by utility companies in conjunction with the contractor during project construction.

4. Completion date or schedule for each utility conflict to be resolved by each utility company.

5. Work to be performed for each utility company by the Contractor.

6. Utility license, permit, insurance, or right of entry requirements.

7. Indication of all workday windows or any restrictions required by the utility the contractor should be aware of for construction scheduling purposes, including utility outage/shut-down limitations.

8. Indicate special conditions, locations or clarifications in direction related to utility facilities or work that might affect a contractor's bid or schedule.

B. Clearance Letter

The Consultant shall prepare a Utility Clearance Letter prior to Stage IV and submit it at Stage IV, together with copies of correspondence from utility companies verifying the information, to U & RR for review and concurrence. This shall include the Consultant's final review and submittal of Section 107 or other Special Provisions related to utility work.

1. If there are no conflicts:

   A statement that there are no utility conflicts with the project shall be used only when there are no utility facilities needing adjustment or when all adjustments have been completed prior to writing the Clearance Letter.

2. If adjustments are needed:

   The Clearance Letter shall list each utility company separately, showing:

   a. The name of the company, address, contact name and phone number.

   b. The nature of required adjustment

   c. The status of Agreements and applicable permits (City, County, Forest, State Land, etc.)

   d. The status of the utility adjustment

      (1) Completed

      (2) To be done by contractor during construction

      (3) To be done by utility company during construction, with estimated completion date or number of working days required following milestone achievement

      (4) In progress, with estimated completion date

435 Establishing Utility Service Connection

Utility service connections are required to facilitate operation of lighting, signals, irrigation controllers, pump stations and FMS systems, etc. The Consultant is responsible for securing establishment of service connections prior to construction.

A. Steps for securing service:

1. Consultant shall determine service need(s) based upon concept and preliminary work. This shall be done shortly after Stage II submittal.

2. Consultant shall determine which utility serves the area and who the utility's coordinator is. This shall be done within thirty (30) days after NTP.

3. Consultant shall meet with the utility's Coordinator to review the project's proposed construction and determine how service can be brought to the desired location(s). Preferred location for service Load Centers and meters is just inside ADOT right of way and outside Controlled Access. This shall be done shortly after the Stage III submittal.

4. Consultant shall prepare a service request letter on ADOT letterhead for ADOT signature to the utility with a copy to U & RR that contains the following:

   a. Number of electrical services required

   b. The address of each service

   c. The required voltage/volume/pressure of each service

   d. The load breakdown for each service

   e. A brief description of the work required

   f. Who is responsible for signing the utility's service agreement and who will pay connection/extension charges.

   g. Who is responsible for paying the utility bills and to whom and where to send the monthly billings

5. The Consultant shall receive and review the service agreement from the utility company which will provide service at the location(s) requested in the service request letter.

6. The Consultant shall forward service agreements to the ADOT utility coordinator to complete the agreement signing process and prepare the applicable payment agreement.

7. The Consultant shall include the name and phone number of the utility contact person responsible for arranging the new service in the Special Provisions with instruction to the Resident Engineer to contact the utility for scheduling the work when service is desired.

8. Consultant shall place the service address on the plans adjacent to the appropriate Load Center and/or meter.

9. Consultant shall show the location of the utility service source so the contractor will know where to excavate to/from.

10. The service agreement shall be signed shortly after the Stage IV (95%) submittal

B. The Consultant shall assist in the development of exhibits for transfer of right of way to utilities with prior rights.

440 Roadway Design

The Consultant shall prepare design plans on ADOT standard sheets and construction documents for the roadway improvements including but not limited to the following:

A. Face sheet and List of Standard Drawings (ADOT will provide these sheets for incorporation into the design plans)

B. General notes

C. Design sheet and index

D. Typical roadway and detour sections

E. Roadway and detour plans and profiles

F. Intersection plans and profiles, including staking plans

G. Cross road and frontage road plans and profiles

H. Retaining wall and sound barrier wall plans and profiles

I. Earthwork quantities

J. Details

K. Special provisions

L. Annotated cross sections

M. Arizona State Plane Coordinate Ties

NOTES:

1. Standard plan sheet size is 22" x 34" (ANSI "D" Size) with borders as specified by ADOT. All plan sheets shall be suitable for plotting at true half scale.

2. Cross sections will not be part of the plans, but will be reviewed and made available to contractor's bidding on this project. Therefore, the cross sections must be suitable for reproduction. Horizontal and vertical scales shall be the same. Preferred scale: 1"=10', (1"=5' or 1"=20' are also acceptable if special conditions warrant). Each cross section shall show the plotted finished grade roadway template(s) including the subgrade superimposed on the plotted natural terrain (dashed line) and shall include as a minimum the following annotation: centerline finished grade elevation and station value of controlling roadway template on each cross section, R/W limits indicated with symbol. Slope rates (X:1) should be shown on the cross sections, on each side of the controlling roadway, on the last slope that connects to the existing ground. Connecting slopes from adjoining roadways, such as median slopes, should have both connecting slopes annotated, if applicable. The slope rate information may be provided separately in a station by station listing as an alternative. Construction phasing, temporary roadways and detours shall be shown on cross sections, if applicable. Manually plotted cross sections shall be drawn on vellum grid paper. CADD computer generated cross sections shall be plotted with a 1" grid and shall have an appropriate horizontal and vertical tick marks (10 tick marks per inch) with 1" datum annotations (elevation on vertical and

distance on horizontal) and shall be plotted on vellum paper suitable for reproduction. Submittals shall be on standard 22"x 34" sheets. Cross sections shall normally be prepared at one hundred (100) foot intervals, as a minimum, with additional sections at breaks in the terrain unless otherwise directed by the ADOT project manager. (Cross sections shall be included in all submittals to utility companies and as requested by other members of the team).

3. All designs shall conform with the latest Americans with Disabilities Act Accessibility Guidelines Title I and II.

4. The Consultant shall provide the various ADOT Technical Sections involved in the design of this project with roadway base sheets as required.

445 Bridge Design

The Consultant shall prepare designs and construction documents for structural design including, but not necessarily limited to:

A. General plan

B. General notes and quantities

C. Foundation sheets

D. Abutment details

E. Pier details

F. Superstructure sheets

G. Screed elevations

H. Special details (if applicable)

I. Stage construction sequencing details (if applicable)

J. Pile records (if applicable)

K. Special provisions and cost estimates

446 Bridge Selection Report

During Stage II, prior to preparation of final designs and construction documents, the Consultant shall submit a Bridge Selection Report for the new bridge and/or for renovation of the existing bridge. The report shall be prepared in accordance with the ADOT Bridge Designing and Detailing manual. ADOT must approve the report prior to the Consultant beginning the final design of the bridge.

The final structural plans shall reflect the most current design standards, specifications and ADOT policy. Therefore, the Consultant shall be responsible for studying revisions to the plans made during the development of the project and ascertaining how the structural design will be affected. The Consultant shall work with the ADOT project manager, who will give the final authorization, in determining the propriety of modifying the design to accommodate the revised standards, specifications and ADOT policy. The Consultant will be compensated by Contract Modification for any significant redesign resulting from this requirement. A final review of the applicable standards and specifications will be conducted by the Consultant at Stage IV.

450 Drainage Design

451 Drainage Reports

A. The Consultant shall be responsible for preparing the Initial and Final Drainage Reports for drainage.

B. The Consultant shall conduct hydrologic and hydraulic analysis and/or obtain available public information to identify flood plains and probable flood plain impacts. The Consultant shall determine existing and developed conditions, discharges for all pertinent drainage systems, and existing flow patterns; assess possible drainage problems, identify possible solutions, and propose tentative hydraulic improvements.

   Part A of the Initial Drainage Report, hydrologic information, may be submitted and informally discussed with the ADOT Bridge Drainage Section prior to detailed hydraulic analysis in order to facilitate proper progress of the study. The Drainage Report may require additional data as it relates to NPDES, i.e., flow analysis in ditches, intersecting drainage's, etc., in order to adequately design temporary erosion control structures.

   Following Part A, Hydrologic Information Review, the Consultant shall conduct hydraulic analyses of proposed flood plain modifications, hydraulic structures, and drainage-related improvements which are proposed. The Consultant will then prepare an Initial Drainage Report consisting of both Part A, Hydrologic and Part B, Hydraulic studies and their supporting documentation.

C. The Consultant shall prepare a Final Drainage Report, pursuant to comments and approval of the Initial Drainage Report, based on refined hydraulic structure selections and sizing. The report shall provide analysis of changes to existing flow patterns and the design of channels, culverts and other drainage structures.

   The Final Drainage Report shall be submitted concurrent with the Stage III Design submittal unless other arrangements are made with the ADOT project manager.

452 Drainage Designs

The Consultant shall prepare designs and construction documents for drainage features including, but not limited to:

A. Drainage culverts and underpass structures for cattle/game crossings

B. Catch basins, manholes and connector pipes

C. Drainage Pipe and Concrete Box Culvert Summary Sheets

D. Drainage details

E. Drainage culvert profiles

F. Retention/Detention Basins

453 Section 404 Permit

ADOT with the Consultant, as appropriate, in consultation with the Corps of Engineers, will determine the need for a Section 404 permit. If a permit is required, ADOT will process the permit application. The Consultant shall be responsible for providing ADOT with technical data for the roadway cross drainage-ways (i.e. typical sections, location and approximate areas of cut and fill within each drainage way) to support the determination of need for a permit and/or the permit application.

454 Evaluation of Alternative Pipe Culvert Materials

The Consultant shall be responsible for evaluating all forms of ADOT approved pipe culverts. Evaluation documentation shall be included with the design calculations per Section 1040. Valid designs shall be indicated on the New Pipe Summary Sheet.

455 Landscape Architectural Design and Erosion Control Design

A. The Consultant shall be responsible for completing all temporary and permanent erosion control plans, specifications and estimates in accordance with the ADOT Erosion and Pollution Control Manual for Highway Design and Construction and recommendations from Roadside Development Section.

B. The Consultant shall be responsible for completing necessary plans, specifications and estimates required to implement the necessary environmental mitigation as required by the Final Environmental Assessment, currently in approved draft form. This will include but not be limited to the following:

    1. Prepare a resource protection plan that will preserve and protect existing vegetation on or adjacent to the work site that does not unreasonably interfere with work requirements, identify sensitive areas within the project limits to include riparian areas and key visual areas such as rock outcrops and vegetation that are to be retained, identify potential Contractor staging sites, equipment yards, batch plants, waste earthwork disposal sites, etc.

2. Prepare site-specific reclamation and re-vegetation plans and seeding specifications in coordination with Roadside Development Section.

3. If the project earthwork cannot be balanced and waste site(s) are proposed on Forest lands, the Consultant shall coordinate with the National Forest on possible waste sites and recommend treatments for disposal of the materials. If waste sites are approved on Forest lands, the Consultant shall develop complete contour grading plans that will provide variable slopes with smooth and rounded transitions and will preserve existing vegetation, land forms and drainage patterns.

C. The Consultant shall be responsible for the preparation of the Storm Water Pollution Prevention Plan (SWPPP) to meet the requirements of Section 402 of the Clean Water Act (NPDES). This shall include the preparation of the SWPPP Standard Sheet and the preparation of erosion control plans for the project in accordance with the ADOT Erosion and Pollution Control Manual for Highway Design and Construction and recommendations from Roadside Development Section. The erosion control plan shall show the location of the temporary erosion and sediment control features necessary to prevent storm water pollution and shall include erosion control summary sheets, erosion control details, erosion control plan sheets, specifications and estimates. The permanent erosion control features shall be shown on the roadway plans and as appropriate, specified in the special provisions.

460 Traffic Engineering Design

461 Traffic Engineering Study

The Consultant shall perform a Traffic Engineering Study which addresses those concerns that are appropriate for the project. The study shall provide all necessary data not already furnished by the Department. It is expected that the Consultant will make one or more visits to the project site to familiarize themselves with any issues that may have any bearing on the success of the project.

The Traffic Study should also address the items listed below. The items listed are intended only as a guide and are not meant to necessarily limit the scope of the study:

A. Average Daily Traffic

B. Turning movements at each intersection

C. Accident Data and Analysis

D. Access Control

E. Signing

F. Pavement Markings

G. Pass/No Pass Zones

H. Speed Zones

I. Signal Warrants

J. Left and Right Turn Warrants

K. 30th Hour Design Hour Volume

L. Peak Hour Volume

M. Bicycle Activity

N. Pedestrian Activity (ADA Requirements)

O. Parking

P. School Zones

Q. Appurtenances (guardrail, barriers, etc.)

R. Channelization, Turning Templates

S. Signal Phasing & Timing

T. Capacity

Note: The need for these items will vary depending on the nature and locale of the work.

462 Traffic Control Plans

When required by the complexity of the project, the Consultant shall prepare an appropriate phasing plan for the project. The plan shall be consistent with good constructability, taking into account the contractor's probable approach to the work and the cost and inconvenience to local businesses and residents. Phasing and project duration should be coordinated through the Project manager, the Construction District and Contract & Specifications Services.

Once the project phasing has been determined, the Consultant shall prepare a traffic control plan which may be as simple as a few paragraphs in the Special Provisions outlining which setups in Part VI of the MUTCD or the ADOT supplement are to be used or may be a set of detailed plans showing exact configurations of traffic control devices for the project. A summary of quantities and duration along with an estimate of costs and any special provisions shall be provided by the Consultant at each stage of the project beginning with Stage II.

New construction, reconstruction, pavement rehabilitation, overlays, bridge widening or repairs and other similar work generally will have a significant impact on traffic operations and will normally require a set of Traffic Control Plans with quantities, duration, unit prices, and special provisions.

The following categories of projects generally have a low impact on traffic operations and do not normally require traffic plans:

A. Landscaping projects of short duration

B. Signal projects

C. Scour protection projects

D. Fencing projects

E. Sound wall projects

F. Signing projects

G. Lighting and other electrical projects

H. Sidewalk and ADA ramp projects

I. Bike lane projects

J. Rest area construction projects

K. Minor surface treatments (Chip Seals)

Special Provision 701 DETRM can be used for projects that fall into the low impact categories. This special provision provides pre-determined unit prices for all of the likely pay items. There are, however, two lump sum items which must be computed. Item 7010001 is intended to provide a summary of the anticipated cost of the devices to be used on the project. This item shows in the bid schedule as a fixed price. The second lump sum item, 7010006, allows the contractor to recover his costs for furnishing, placing, and removing the various devices during the construction.

Two other pay items may be included in the bid schedule, when appropriate. Both items require the contractor to provide a bid amount. The items are 7010010, Temporary Concrete Barrier and 7010012, Temporary Impact Attenuation Devices.

463 Intersection Signalization and Roadway Lighting

The designer shall prepare construction documents for installation of traffic signals. Installations for future signals may require only conduits and pullboxes.

The designer shall comply with ADOT's current lighting policy and provide a complete set of roadway lighting construction documents including, but not limited to:

A. Complete freeway lighting including mainline, entrance and exit gore areas, ramps, and crossroads.

B. Underdeck Lighting.

C. Sign Lighting.

The designer shall in accordance with Section 430 of the Dictionary of Standardized Work Tasks and the project scope of work coordinate with the local electric utility to provide electric service. If warranted, the designer shall advise the project manager of the need for an IGA with the local jurisdiction for funding, maintenance, and energy costs.

464 Signing Plans

The Consultant shall prepare designs for signing that are consistent with current signing practice and in conformance with the Manual on Uniform traffic control Devices (MUTCD), the Traffic Engineering Design Manual, the Manual of Approved Signs(MOAS), and Traffic Group's Sign Sheeting Guidelines, dated May 31, 1996. Freeway signing within the MAG system shall in addition conform to the MAG network Signing Plan, dated January 1992.

A signing summary shall be provided in the project plans. Non-standard signs shall be detailed on the project plans following the formats given in the above referenced documents. The signing summary , a detailed estimate of costs, and any special provisions shall be included with each submittal beginning with Stage II.

465 Pavement Marking Plans

The Consultant shall prepare permanent pavement marking designs for the roadways within the project limits to show center, edge and lane line striping, stop lines, crosswalks, arrows, legends, and symbols, raised or recessed pavement markers, object markers, delineation or other markings as may be consistent with the needs of the project and in conformance to the requirements of the MUTCD, the Traffic Design Manual, and the Standard Drawings. The Consultant shall confer with the district representative and Traffic Group to determine which types of marking or delineation materials are appropriate for the project. The summary of quantities, a detailed estimate of costs, and any special provisions shall be included with each submittal beginning with Stage II.

466 Intelligent Transportation Infrastructure

The designer shall prepare construction documents for elements to be included in the project for accommodation of the Intelligent Transportation Infrastructure in accordance with the ADOT Freeway Management System Design Guidelines.

470 Right-of-Way

471 Right-of-Way Requirements Determination

The Consultant shall determine the requirements for new right-of-way (R/W) and easements, including, but not limited to, new roadway R/W, slope easements, drainage easements, temporary construction easements, waste site R/W, access control R/W, borrow source R/W and haul road R/W.

The Consultant shall submit to ADOT, in writing, the preliminary R/W requirements on or before the Stage II design submittal and the final R/W requirements on or before the Stage III design submittal. No revisions or additions to the R/W requirements will be allowed after the Stage III submittal without the approval of the ADOT project manager.

The new R/W requirements shall be submitted in triplicate to ADOT for review and shall include the following as a minimum:

A. A letter indicating the project name, contract number, project location, originator of report (Firm's Name), submittal date and submittal type (Stage II or III).

B. A plan of sufficient scale and detail to show the existing and proposed roadway R/W and proposed easements.

C. Type of acquisition required:

   At the Stage II submittal, the new requirements may be estimates of the final R/W with enough definition to identify all ownership's that will be affected. The preliminary requirements should be large enough to cover all possible R/W needs.

At the Stage III submittal, the new requirements shall be accurately defined with widths, lengths, stations, offsets, etc.

472 Right-of-Way Acquisition

If new R/W is required for the project, ADOT will acquire all necessary R/W and easements. Based on the requirements provided by the Consultant, ADOT will:

A. Prepare final R/W plans and associated documents necessary for R/W acquisition (Final plans may be prepared by others)

B. Acquire necessary R/W including easements, material sites and waste sites

C. Obtain the necessary authority to proceed with the various phases of property acquisition

D. Prepare the necessary data for Transportation Board resolutions and project clearance letters

473 Temporary Entry Documents

A temporary entry document for entry to each parcel for any or all of the following activities is required: Geotechnical investigations, and design or construction survey work. The Consultant shall notify ADOT of the need for any temporary entry documents no later than thirty (30) days after the notice to proceed. ADOT will obtain the appropriate owner's signature. The Consultant may not enter any such property prior to approval of the temporary entry documents by ADOT.

480 Cost Estimates

The Consultant shall prepare combined and detailed estimates (cost estimates) in the format recommended by Contracts and Specifications Section. The cost estimate shall include a recapitulation sheet concurrent with each review submittal. Computer generated estimate forms may be used, provided the format is approved by the Contracts and Specifications Section. At the Stage II review, the Consultant shall prepare a bidding schedule and concurrently with each review submittal thereafter. ADOT will provide the necessary format.

The budgeted cost for this project is indicated in Section 140 of this Scope of Work. The Consultant shall immediately advise ADOT, in writing, if there is any reason to believe the project cannot be constructed within the allocated budget. The Consultant shall identify options to maintain the project within budget, including shortening the project, revising criteria, or phasing changes.

485 Specifications

The Consultant shall be responsible for identifying critical elements of construction, including, but not limited to, construction limits, access requirements, potential night construction, coordination with affected local agencies (police, fire, USFS, etc.), traffic lanes open, scheduling of work time (bar chart format illustrating estimated construction time), utility trench close ups, incentives and liquidated

damages, State-furnished materials, critical materials requiring pre-bid purchase, and limitations specifically addressed in the environmental, right-of-way, and utility clearances.

490 Special Provisions

The Consultant shall prepare Special Provisions for items, details, and procedures not adequately covered by ADOT's Standard Specifications and Stored Specifications. Unusual requirements necessary for obtaining permits for hauling materials shall also be included. Special Provisions shall be submitted at the Stage III and Stage IV project reviews. Final Special Provisions shall be sealed by the engineer in responsible charge. The Consultant shall be responsible for incorporating any specifications provided by ADOT technical sections into the draft and final Special Provisions. ADOT shall review all submittals of Special Provisions and the Consultant will prepare the final Special Provisions.

495 Contracts and Specifications Process

The Consultant shall, under the direction of ADOT, support the Contracts and Specifications process after completion of the Final Submittal stage leading to the complete bid documents as follows:

A. Promptly answer questions relative to the plans, quantities, and Special Provisions.

B. Make any necessary corrections to the plans, typical sections, Special Provisions, quantities, notes, etc. as required.

C. Prepare any addenda required to clarify the work included in the contract documents as requested by the Contracts & Specifications section. The addenda shall be prepared immediately upon request. Addenda may be required based on the project inspection with the assigned ADOT Resident Engineer, questions developed in the pre-bid conference, or conditions discovered by bidders during the bid period.

D. The Consultant shall, prior to the pre-bid conference be prepared to walk the project with the assigned ADOT Resident Engineer to discuss the plans and details.

E. The Consultant shall be prepared to attend the pre-bid conference, if one is scheduled, and present an appropriately-sized display showing the project layout, proposed traffic control and construction phasing, and shall be prepared to discuss other constraints so that the potential bidders will be better able to relate to the intent of the construction of the project. The Consultant shall respond to questions related to the plans, details and special provisions.

F. The Consultant shall be prepared to assist in the analysis of bids, including: determination of reasonableness and justification of cost variances, analysis of original cost estimate compared to contractor bid costs.

SECTION 600 - POST DESIGN SERVICES

ADOT will coordinate all post-design services and will act as the principal initial contact for post-design questions. The Consultant shall be responsible for the post-design services described below. Post-design services will be added to the contract by contract modification.

A. The Consultant shall be available, within twenty-four (24) hours of notification, to respond to questions in the field that may arise relative to the plans, details, or special provisions during construction.

B. The Consultant shall review and approve shop drawings, erection procedure plans, and form work details, review proposals for substitutions or "approved alternates," assist the resident engineer in developing change orders, and provide other engineering services required to facilitate construction of the project.

C. The Consultant shall appoint a responsible member of the firm to be the contact person for all post-design services. This person shall be continually available during the course of construction for review and updating of design plans.

D. The Consultant shall make every reasonable effort to process any material presented for review in a prompt manner.

E. The Consultant may be required to attend the Pre-Construction Partnering Workshop and/or utility coordination meetings.

SECTION 700 - MATERIALS FURNISHED BY ADOT

710 Surveys and Mapping

ADOT will provide the following materials, as available:

A. Horizontal and vertical control for existing alignments

B. Descriptions and values for Geodetic control

C. Field Survey

1. Planimetric maps
2. Topographic maps
3. Digital Terrain Model
4. Profile maps

D. Control for aerial maps

E. Photogrammetric Mapping (Contour Interval = 2 ft.)

1. 1" = 50' photogrammetric mapping
2. 1" = 100' photogrammetric mapping
3. 1" = 50' Digital Terrain Model
4. 1" = 100' Digital Terrain Model

F. Photo mosaic

G. Aerial photos

H. ADOT State Plane Coordinate Grid Adjustment Factor(s)

720 Materials Investigation

ADOT will provide the following materials:

A. Geotechnical Report if applicable

B. Pavement Design Summary if applicable

C. Materials Design Report if applicable

D. ADOT will provide review of all submitted reports prepared by others for this project.

730 Record Documents

The Consultant shall obtain the following ADOT drawings:

A. Available "as built" plans, of existing conditions

B. Available right-of-way plans of existing conditions

740 Traffic Data

The Consultant shall obtain from ADOT the following design traffic data:

A. Current and design year ADT

B. K, D, and T factors

750 Environmental Studies

In addition to the Final Environmental documents, ADOT will provide, at the Consultant's request, any available environmental data prepared for this project (such as cultural resource surveys and investigations).

760 Base Sheets

ADOT will provide the Consultant with one (1) reproducible copy of each of the following base sheets as required for completion of the project plans. For Intergraph compatible CADD systems, these items will be provided on computer diskettes.

A. Roadway Design Section sheet

B. New Pipe Summary sheet

C. Barrier Summary sheet

D. Reinforced Concrete Box Culvert Summary sheet

E. Roadside Development Section sheet

F. Corrugated Aluminum Pipe Extensions Summary sheet

G. Corrugated Steel Pipe Extensions Summary sheet

H. Combination Barrier and Pipe Summary sheet

I. Cell Libraries (CADD only)

J. Font Libraries (CADD only)

K. Face sheet

L. List of Standard Drawings sheets

M. Traffic Design Section sheets

N. Traffic Operations Section sheets

O. Right-of-Way Plans Section sheet

770 Final Design Concept Report

The Final Design Concept Report will be provided to the Consultant.

SECTION 1000 - CONTRACT ADMINISTRATION

1010 Arizona Department of Transportation

ADOT's Project Manager shall:

A. Conduct ongoing reviews of the Consultant's progress in performing the work and ensure timely comments from the technical units.

B. Direct design consensus status and team building meetings with all appropriate partners at the start and on a monthly basis during the project development period.

C. Review the Consultant's billings

D. Review and evaluate the Consultant's requests for extension of time and supplemental agreements

E. Review all correspondence with public agencies prior to the Consultant's mailing of any correspondence

F. Coordinate the distribution of public information

G. Provide a focal-point contact for all questions, requests, and submittals

H. Coordinate project scheduling with the Consultant, ADOT sections, and ADOT Program and Project Management Section.

1020 Consultant

The Consultant shall:

A. Establish, furnish and maintain suitable office facilities to serve as the project office for the duration of the project in the location specified in the Consultant's technical proposal

B. Maintain an adequate staff of qualified support personnel to perform the work necessary to complete the project

C. Establish internal accounting methods and procedures for documenting and monitoring project costs

D. Establish and maintain contract administration procedures, which will include supplemental agreements, time extensions and subcontracts

E. Include the complete TRACS number and project name on all correspondence related to this contract.

F. Participate in design consensus, status and team building meetings with all appropriate partners at the start, on a monthly basis during the project development period and as needed to maintain the design schedule. If requested by the ADOT project manager, the Consultant shall act as the lead.

The Consultant is responsible for the accuracy and completeness of contract documents and related design prepared under this project. The plans will be reviewed by the project team including representatives of ADOT technical sections for conformity with ADOT procedures and the terms of the contract. **Review by ADOT does not include detailed review or checking of design of major components and related details or the accuracy with which such designs are depicted on the plans.**

1021 Project Control

The Consultant shall provide data, in the format specified by ADOT, upon request to monitor costs and manpower and to report progress.

The project control system may include features to:

A. Determine and highlight critical path work from initial plans as work progresses

B. Identify progress against schedule for each identified work item

C. Forecast completion dates from current progress

D. Highlight rescheduled work in any area which is out of the required sequence

E. Determine any physical area that requires more resources than originally allocated

F. Forecast future conflicts in any area

G. Provide estimates of time, manpower, and dollars required at the lowest work element tracked, based upon current expenditures versus schedule

H. Provide the capability of random inquiry concerning the status of any work element in terms of schedule, manpower, and dollars

1022 Subcontract Services

Due to the nature and scope of the required services, it may be desirable for the Consultant to subcontract portions of the work. However, the subcontracting firms must be approved in writing prior to initiation of any work. The volume of work performed by the subcontractors shall not exceed 49 percent (49%) of the total contract value.

1023 Project Related Correspondence

The Consultant shall furnish written documentation of communications between the Consultant and any party pertaining specifically to this project to ADOT for their records within one week of the communication. The Consultant is responsible for recording and distributing to the participants the minutes of all meetings pertaining to this project within one (1) week of the meeting.

1024 Quality Control

The Consultant is responsible for the accuracy and completeness of the plans and related design prepared under this contract and shall check all such material accordingly. The Consultant shall have a quality control plan in effect during the entire time work is being performed under this contract. The plan shall establish a process whereby plans, calculations and documents submitted for review shall be clearly marked as being fully checked by a qualified individual other than the originator. Non-compliance will be sufficient cause for rejection of submittal. Periodic Quality Control audits may be performed by the ADOT project manager.

The Consultant shall submit the quality control plan to ADOT for approval within fifteen (15) working days of receipt of written Notice to Proceed. The plan shall comply with the requirements of Section 1025. The plan shall address as a minimum: checking procedures, training of employees in quality requirements, methods of monitoring and documenting quality control activities.

1025 Quality Control Plan Requirements

A. Identification of key personnel and definition of specific responsibilities:

The plan will identify, by name, the specific project personnel and their individual responsibilities relative to the project and the Quality Control process.

B. Technical review process:

Technical review shall be distinguished from checking. Checking is for verification of the accuracy of the documents; technical review is for the verification of the overall design concept of the project. As a minimum, technical review will do the following:

1. Determine the adequacy of the design process to achieve the desired goals

2. Evaluate the general selection and sizing of materials and equipment

3. Determine if all viable alternatives have been considered

4. Determine the practicality of the design concept

5. Determine if legal and physical restraints were considered

6. Determine if the design theory, concepts, and project layout are logical

7. Determine applicability of computer programs used

8. Determine if the technical specifications are sufficiently comprehensive

9. Determine the constructability of the selected design

C. Checking procedures:

The checking process should assure that all documents produced, including, but not limited to, plans, reports, calculations, specifications, special provisions, estimates, and schedules, are thoroughly checked by an individual equally competent to the originator of the document to verify accuracy. The process will address resolution of conflict and assure agreement of computer programs and procedures for checking computer input and output. Checking shall not only confirm the accuracy of calculations, but shall include a thorough review of the proper use of Standard Drawings, Drafting Guide, Project Design Guidelines, and other manuals and documents referenced under Section 200.

D. Program to train employees in the quality control requirements:

The training program should provide an opportunity for all project staff to become familiar with the design and the quality control process that will be required on this project. Particular attention should be directed to defining specific individual responsibilities and assuring their understanding.

E. Process to monitor and document quality control activities:

A method for monitoring and documenting the required processes is essential to achieve desired results. This process should easily and quickly verify the entire Quality Control process. A checklist should be developed for quick reference and periodic review by the Project Principal and ADOT.

1026 Consultant Personnel

The Consultant's work shall be performed and/or directed by the key personnel identified in the technical/fee proposal presentations by the Consultants. Any changes in the indicated key personnel or the Consultant's officer-in-charge of the work, as identified in the Consultant's proposal, shall be subject to review and approval by ADOT.

1027 Site Visit

The Consultant shall make arrangements to visit to the project site, with agency representatives as appropriate (ADOT, FHWA, National Forest and other interested persons), at least two (2) weeks prior to the visit. The visit will be held within fifteen (15) working days of the receipt of written Notice to Proceed, or as otherwise instructed by the ADOT project manager. Within seven (7) calendar days of the site visit, the Consultant shall issue to ADOT a brief written report including observations, discussions, and any questions pertaining to the scope or level of effort of the project. The purpose of this visit is to acquaint key personnel with the details and features of the project to facilitate the design process.

1030 Acceptability of the Work

The plans, design, requested calculations, reports and other documents furnished under this Scope of Work shall conform to "standards-of-the industry" quality. Criteria for acceptance shall be a product of neat appearance, well organized, accurate and complete, technically and grammatically correct, checked in accordance with the approved Quality Control program, and with the designer, maker and checker identified.

1040 Design Documentation

A. If requested, the Consultant shall submit any design notes, sketches, worksheets, and computations to document the design conclusions reached during the development of the contract documents to ADOT for review.

B. Structural calculations will only be submitted when requested by the Bridge Group and for specific elements.

C. At the project completion (immediately prior to the bid advertisement), a final set of project documentation sheets, sealed by a Professional Engineer, Landscape Architect, or Architect, registered in the State of Arizona, shall be submitted with the record set of plans and tracings.

D. Project Documentation shall include, but are not necessarily limited to, the following data:

1. Design criteria used for the project

2. Right-of-Way calculations (including easements)

3. Geotechnical reports for the pavement and/or bridge design

4. Documentation of decisions reached resulting from meetings, telephone conversations or site visits

5. Drainage reports

6. Field survey notes and computations

7. Calculation of quantities

E. Computer-Aided Design and Drafting (CADD) Standards for all Projects related Deliverables. ADOT shall retain all rights and ownership of all Electronic Files and Hardcopy Deliverables throughout the Design Phases.

1. General Specifications

All drawings to be archived shall conform to ADOT drafting and CADD standards, including CADD file naming convention. The current ADOT approved version of Bentley's MicroStation software will be used. All graphic files shall be provided in MicroStation's native design file (.DGN) format, and contain data in vector format only. Digital Terrain Model (DTM) files shall be produced with Bentley's InRoads/Site/Survey Select CAD compatible file formats. Raster data shall not be accepted unless otherwise stated by ADOT. Use of non-MicroStation vector format and subsequent translation of graphic files to the .DGN format shall not be acceptable. No zipped files will be accepted. Reference files are not to be copied into the plan sheets master file.

All final project documentation, electronic (.DGN, ASCII, ALG, DTM, project wide reference files, etc.) or hard copy, shall be packaged separately, suitably labeled and delivered to the assigned ADOT project manager with 2 copies on CD-ROM (multiple CD's will be allowed) and are the sole property of the State of Arizona. ADOT cells are not to be modified unless approved by ADOT.

All CD deliverables shall contain an electronic Index of Files on the CD and a letter of transmittal to the designated areas and shall be labeled with the information stated below:

Identification Label for CD and Case:

- Prepared By:
- Federal Project Number:
- Route:
- Milepost (Beginning/Ending):
- Prefix (Rt, Co, MP) and TRACS Number:
- Project Name:
- Type of Files:
- Creation Date:
- Disc (#) of (total #)

2. Specific ADOT Group Requirements

In addition to the CADD requirements stated above in the General Specifications, all designers of ADOT projects shall provide the following information requested by the individual technical areas. If unclear about items needed for your project, please contact the Project Manger.

Bridge Group Identification Label

a. Structure Number (4 digit number)
b. Structure Name (i.e. Wildcat Wash Bridge)
c. Type of work category:
    - Major Structure – New Bridge
    - Bridge Replacement
    - Minor Structure
    - Deck Rehabilitation
    - Hinge, Deck or Joint Repair
    - Barrier Replacement
    - Bridge Widening
    - Scour Protection
    - Seismic Retrofit

Materials Group (Geotechnical)

The ADOT and Geotechnical Consultant Engineers shall turn in the Engineer stamped vellums and electronic files to the ADOT Project Manager. The Geotechnical Consultant Engineer shall also provide one copy of the electronic files to the ADOT Geotechnical Engineer.

Roadway Engineering

See General Specifications.

Right of Way Group

All R/W plans to conform with current R/W Plans Standards and Manual. When all comments have been addressed, the designers of ADOT projects shall submit the following:

a. Beginning and Ending Mileposts in tenths of a mile
b. Revised Calculation Book sheets and Point ID sheets, if necessary.
c. An ASCII coordinate electronic file in the following format: Point Number, Northing, Easting, Description using commas as delimiters. Designers of ADOT projects shall ensure this file is free of extraneous text such as page numbers, headers, batch commands, etc. This file shall be such that it can be imported into a COGO program without reformatting by ADOT Right of Way Plans Section. Only numeric numbers shall be accepted.
d. One (1) half-size print of the Final Right of Way Plans set.
e. One (1) full-size set of sealed and signed mylars trimmed to 22" x 34"

Traffic Engineering

Upon final design approval for any and all work that involves Traffic Engineering/Design, the Traffic Engineering Group requires that the following CADD related deliverables be submitted to the Traffic Engineering Project Manager for adherence to ADOT's CADD Standards:

a. All SignCad files shall be submitted in ADOT's current version of SignCad (.SGN).
b. All design CADD files associated with Traffic Design, including Traffic Signals, Signing, Pavement Marking, Traffic Control, Pre-Design, HES Projects, and Permit Designs, shall be submitted in ADOT's current version of MicroStation 2D format (.DGN)(2D).

Engineering Surveys (Location Surveys and Photogrammetry)

In addition to the CADD requirements stated in the General Specifications, all designers of ADOT projects shall provide the following information to the Engineering Survey Section:

- Ground Adjustment Factor (GAF):
- Contour Interval (CI):
- Project Scale:
- Horizontal and Vertical Datums:
- Arizona Zone:
- Hard copy of reports including any plots

Based on the Scope of Work, select the items to be delivered:

a. Hard Copies shall consist of the following:
   - Field notes
   - Sketches
   - Transit and Level books
   - Plots
   - Reports

b. (.DGN) file containing graphical representation of the project (i.e. Planimetrics and contours).

c. (.3D) file containing graphical representation (i.e. breaklines and random points) to produce the DTM.

d. (.DTM) containing Engineering Surveys approved features that make up a correct surface representation.

e. (.ALG) file containing the project alignments. (.RPT) file including curve data from the alignment.

f. ASCII (.CSV) files shall contain the following:
   1. File Header information:
      - Project GAF
      - Project Datums
      - Arizona Zone
      - Basis of Alignment
      - Basis of Stationing
      - Basis of Horizontal Control
      - Basis of Elevation
      - Basis of Bearing
   2. All Project Control
   3. Section Corners
   4. R/W Monumentation
   5. Structures
   6. Edge of pavement
   7. Centerline and driving stripes
   8. Other features as requested

Note: Two (.CSV) files shall be submitted, one containing the RAW survey data and another containing the Edited survey data.

g. All film negatives used to map a project

h. Scanned images and/or diapositives used to map project

i. Aerotriangulation files used to control photography

j. Orthophotos produced for the mapping project

k. Record of Survey: When requested, Record of Survey shall be in electronic (.DGN / .PDF) format with a stamped original.

l. Pictures: Upon Request pictures shall be taken for all structures including end of pipes, and headwalls, caps, and any unnatural terrain feature in a (.JPG or .BMP) file format (check scope of work).

If unclear about items needed for your project, please contact the Engineering Survey Section.

ADOT PROJECT MANAGER:
All survey and photogrammetry projects shall be submitted to the Engineering Survey Section through the ADOT and consultant project manager, for verification of deliverables and archiving purposes. A notification of findings shall be sent to the project manager after completion of project review.

1050 Value Analysis

"Value Analysis", also know as "Value Engineering" consists of those tasks performed by a Value Analysis Team in accordance with the Value Analysis Program Manual as referenced in Section 200 of the Scope of Work and available from the ADOT Value Analysis Section. Any studies or other activities of a similar nature, shall not be referred to as "Value Analysis" or "Value Engineering."

The design team is encouraged to recommend value analysis for ADOT standards and specifications, as well as for elements of the project.

1051 Value Analysis Team

The value study will be performed by a value analysis team consisting of ADOT personnel, personnel from consultants or outside agencies, or some combination of these sources. The design team shall cooperate fully with the value analysis team, providing necessary background information for analysis. At the discretion of the project manager, the design team may be requested to assign one of its representatives to the value analysis team.

1052 Design Team Responsibilities

A. The design team, upon notification of the approval of a value analysis, shall compile appropriate data for analysis and make a presentation to the value analysis team, in accordance with the Study Plan prepared by the value engineer. The design team shall communicate and cooperate fully with ADOT's value engineer and the value analysis team.

B. It is expected that the elements necessary for a value study can be assembled and delivered by the design team with minimum expenditure of effort and time under its normal design procedures in approximately four (4) working days. The design team will be allowed to budget thirty-two (32) man-hours for data compilation, the presentation, and study response, if appropriate. If the design team is requested to furnish a representative to participate as a member of the value analysis team, additional hours may be necessary. Although costs for value analysis activities are not identified as a separate expense item for accounting purposes, the design team shall report the hours expended and estimated costs of labor and materials to the ADOT value engineer for cost tracking and value analysis program evaluation purposes.

C. In accordance with the Program Manual, the findings and recommendations of the value study will be forwarded to the ADOT project manager for review. The project manager will review the value analysis recommendations with the project team and respond to the Value Analysis section as soon as practical indicating acceptance, possible acceptance pending further investigation, or rejection of each recommendation. The design team shall implement the approved recommendations of the value study. If significant effort is required, the additional work will be added to the Scope of Work by contract modification.

1060 Reviews and Submittals

A. Review and coordination of the Consultant's work by ADOT will continue through the project development process. The Consultant may continue the design work while design submittals are being reviewed by ADOT. Doing so however in no way relieves the Consultant of the responsibility to incorporate review comments into the design, nor does it entitle the Consultant to any additional design fees as a result of making changes due to review comments.

B. Partnering Workshops

1. If requested by ADOT, the Consultant shall participate in joint progress meetings and consensus sessions with other designers on this corridor.

2 The Consultant shall participate in a Construction Partnering Seminar after the project has been awarded and prior to the start of construction.

C. Submittals for review shall be made when the studies and/or plans have been developed to the following levels of completion:

1. Quality Control Plan

2. Stage I design

3. AASHTO Report

4. Stage II design

5. Stage III design

6. Stage IV design

D. This project may be subject to a constructability review. The Resident Engineer or other assigned District representative will be the leader of the constructability review which would normally occur after the Stage III submittal and before the Stage IV submittal.

E. Copies of review submittals and finalized documents shall be distributed by the Consultant in accordance with the Distribution List maintained by the Statewide Project Management Section (see Appendix C) or as per the ADOT project manager's instructions. The appropriate name for each position may be obtained from the ADOT project manager upon request one week prior to any submittal deadline. All deliveries shall be by hand or overnight courier. All plans and cross sections shall be half-size black and white sheets.

1061 Environmental Reports - N/A

1062 Stage I Design Submittal

An informal review and discussion of the project shall be held prior to the Stage I review submittal. The meeting shall take place as soon as the Consultant has established pre-initial roadway alignment, typical roadway sections, and a tentative plans layout for the project.

The attendees shall consist of the Consultant, the assigned design team including ADOT staff involved in the project design, the ADOT project manager and other concerned personnel invited by the ADOT project manager.

A. The following material shall be developed and submitted to the ADOT project manager for review:

1. Initial typical roadway sections

2. Initial roadway plan and profile sheets at the scales set in Section 410.

3. Tentative plans layout

4. Initial environmental mitigation measures

5. Request for utility designation services

1063 Stage II Design Submittal

A. The following material shall be developed and submitted for review:

17. Typical roadway and detour sections

18. Final roadway geometry and preliminary roadway and detour plan and profile sheets

19. Location of existing utilities and identification of initial utility conflicts

20. Utility report

21. Preliminary R/W and easement requirements

22. Preliminary roadway drainage plans and details and Initial Roadway Drainage Report

23. Bridge Drainage Report

24. Bridge Selection Report

25. If required, draft applications for environmental permits including preliminary input for Section 404 permit

26. Any significant change in engineering data supporting previous environmental decisions or applications

27. Preliminary summary of required environmental mitigation measures

28. Preliminary Landscape Architectural plans with proposed sources of power and water.

29. Preliminary development of intersection plans including basic geometry and channelization

30. Preliminary layouts for proposed retaining and sound barrier walls

31. Preliminary construction sequencing plans

32. Final Geotechnical Report

33. Final survey information

34. Initial quantities and cost estimate

35. Preliminary roadway cross sections at one hundred (100) ft. intervals, as a minimum, with additional sections at breaks in the terrain. See Section 440, Roadway Design.

36. Preliminary summary of earthwork quantities

B. The Geotechnical Report shall be submitted to ADOT for review and approval a minimum of fifteen calendar days prior to the Stage II Design Submittal.

1064 Stage III Design Submittal

A. The following material shall be developed and submitted for review:

27. Final typical roadway and detour sections

28. Pre-final roadway and detour plan and profile sheets

29. Identification of final utility conflicts and preliminary plans of utility installations and/or re-locations to be included in project construction

30. Pothole data made available to utility companies

31. Utility report

32. Final R/W and easement requirements

33. Pre-final roadway drainage plans and details and Final Roadway Drainage Report

34. Completed applications for environmental permits including final input for Section 404 permit

35. Any significant change in engineering data supporting previous environmental decisions or applications

36. Final summary of required environmental mitigation measures

37. Pre-final intersection plan sheets

38. Final construction sequencing plans

39. Pre-final layouts for retaining and sound barrier walls

40. Preliminary landscape architectural plans, summaries, and details and proposed sources of water and power

41. Preliminary design sheet with index and general notes, summary sheets and special details

42. Preliminary summary sheets

43. Preliminary special details

44. Preliminary bridge structure plans

45. Preliminary traffic control plans

46. Preliminary pavement marking and signing plans

47. Preliminary traffic signal plans

48. Preliminary lighting plans

49. Preliminary erosion control plans, summaries and details

50. Preliminary special provisions including ADOT Stored Specifications

51. Preliminary quantities, cost estimate and bidding schedule

52. Preliminary construction schedule in bar chart format

53. Preliminary roadway cross sections at one hundred (100) ft. intervals, as a minimum, with additional sections at breaks in the terrain. See Section 440, Roadway Design.

54. Preliminary summary of earthwork quantities

55. Preliminary Utility Special Provisions

An office review and field review will be held following submittal of the Stage III plans to review the proposed roadway alignments and bridge site. See Section 410 of this Dictionary of Standardized work tasks for field review staking requirements.

1065 Stage IV Submittal

A. The following **final** material shall be completed, checked and submitted for review:

25. Design sheet(s) with index and general notes

26. Summary sheets

27. Special details

28. Typical roadway and detour sections

29. Roadway and detour plan and profile sheets

30. Drainage plans and details

31. Intersection plans and details

32. Construction sequencing plans

33. Traffic control plans

34. Traffic signal plans

35. Signing and pavement marking plans

36. Lighting plans

37. Bridge plans

38. Retaining wall and sound barrier wall design plans

39. Landscape Architectural plans and details

40. Utility installation/relocation plans and details to be included in project construction

41. Utility report

42. Utility Special Provisions

43. Utility relocation schedule and costs

44. Erosion control plans

45. Roadway cross sections (see Section 440, Roadway Design)

46. Final summary of earthwork quantities

47. Quantities, cost estimate and bidding schedule (provide hard copy and diskette in Microsoft Excel)

48. Special provisions (provide hard copy and diskette in Microsoft Word)

49. Construction schedule

50. Environmental permits

51. Summary of environmental mitigation measures and disposition

52. Final design calculations

NOTE: The ADOT technical reviewer may require checked computations and checked data on the plans for all of these items prior to submittal.

B. ADOT's review of this submittal will include technical content, incorporation of previous comments, and completion of design and details, as well as:

1. Conformance with ADOT requirements

2. Completeness of the contract documents

3. Compatibility of plans, specifications, and special provisions

4. Coordination between disciplines, phases, and outside parties

5. Clarity of the contract documents

6. Consistency of presentation

If additional submittals at this level are required due to noncompliance with this Scope of Work or ADOT's review comments, the work shall not entitle the Consultant to any additional design fees.

The Consultant shall prepare and submit to U & RR a Utility Clearance Letter in the style and manner as outlined in the *Utility Coordination Guide for Design Consultants*. The clearance letter shall be sent before the Final Submittal is made.

1066 Final Submittal

A. The following material shall be submitted for completion of the project:

10. A complete reproducible set of sealed and signed contract document originals necessary to construct the road and/or bridge improvements identified in this contract.

11. A complete sealed and signed reproducible set and one copy of special provisions to cover design items not identified in the ADOT Standard Specifications for Road and Bridge Construction, current edition.

12. An electronic version of all plan sheets as specified in Section 1040. The Consultant shall also provide a separate CD containing all plan sheets in PDF format. Filenames shall conform to the format provided by ADOT.

13. Final and complete quantity summaries and cost estimates

14. An estimate of the contract time for the project construction

15. Final survey computations and original field books

16. Approved environmental permits if required

17. A reproducible set of earthwork cross sections by station showing the plotted roadway template superimposed on the plotted natural terrain (see Section 440, Roadway Design)

18. A reproducible set of final earthwork quantities, calculations and overall summaries

19. Return any documents and other materials provided for use on this project

NOTES:

1. All seals must be of reproducible quality and all signatures in black ink.

2. All final plan sheets shall be trimmed to 22" by 34".

3. All final plan sheets shall be printed on 20 pound vellum not less than 3 mil nor more than 5 mil.

4. Plan sheets shall be black printing only.

5. Do not use paste-ups, tape or sticky back.

6. Do not use pencil on final drawings.

All review submittal prints of the construction plans shall be clearly stamped "**PRELIMINARY - NOT FOR CONSTRUCTION**". The percentage of completion and date submitted should be clearly evident. Failure to comply may be cause for rejection of the submittal. Only the final approved plans, properly sealed by an Arizona Registered Professional Engineer, shall be issued without the above stamped notation.